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TELECOMMUNICATIONS POLICY IN THE CARIBBEAN: A CASE STUDY OF TELECOMMUNICATIONS IN JAMAICA AND CUBA

by

Robert A. Yee

March 2013

Thesis Advisor: Bert Lundy
Second Reader: Gurminder Singh

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Government influence and direction over a country's telecommunication infrastructure is determined by policies and regulations designed to provide oversight of how a telecom company should conduct business within the country. While these policies and regulations can range from extremely liberal to authoritarian, a nation's ideology will dictate how governments interact with telecommunications providers and, ultimately, the telecommunications company's ability to become a viable entity for economic growth. Vast opportunities within the Latin American and Caribbean region exist for telecommunication investors willing to tackle these complex government ideologies.

This thesis explores the Caribbean countries of Jamaica and Cuba, where telecommunication has developed in different ways, based on government involvement in the telecom market, and the policies and regulations designed to foster competition, or lack thereof.

A detailed analysis into political, business and foreign influence shows that Jamaica and Cuba can benefit directly from private investors willing to venture into these countries. A comparison reveals that policy enforcement affects the balance in relationship between government oversight, telecommunications business investors, consumers, and the economy. Recommendations are provided for policy and regulatory enforcement/updates to better support privatization and liberalization of the telecommunications infrastructure of Cuba and Jamaica.

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TELECOMMUNICATIONS POLICY IN THE CARIBBEAN: A CASE STUDY OF TELECOMMUNICATIONS IN JAMAICA AND CUBA

Robert A. Yee
Lieutenant Commander, United States Navy
B.S., Chapman University, 1994

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March 2013

Author: Robert A. Yee

Approved by: Bert Lundy
Thesis Advisor

Gurminder Singh
Second Reader

Peter Denning
Chair, Department of Computer Science

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LIST OF ACRONYMS AND ABBREVIATIONS

JLP	Jamaica Labor Party
PNP	People's National Party
CIA	Central Intelligence Agency
BBC	British Broadcasting Corporation
FTC	Fair Trading Commission
OUR	Office of Utilities Regulation
C&WJ	Cable and Wireless Jamaica
C&W	Cable and Wireless
TOJ	Telephone of Jamaica
GOJ	Government of Jamaica
GSM	Global System of Mobile
CDMA	Code Division Multiple Access
TDMA	Time Division Multiple Access
LIME	Landline Internet, Mobile, Entertainment
ETECSA	Empresa de Telecomunicaciones de Cuba S.A.
STVO	Satellite Television Operator
ISP	Internet Service Provider
IP	Internet Protocol
FCC	Federal Communications Commission
Gbps	Gigs Bits Per Second
VLAN	Virtual Network Operator
VMNO	Virtual Mobile Network Operator
ITALCOM	Italian Communication
CUTELCOM	Cuba Telephone Company
UFCO	United Fruit Company
ITT	International Telephone and Telegraph
AMPS	Asymmetric Multi Processing
ADSL	Asymmetric Digital Subscriber Line

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I. INTRODUCTION

A. DESCRIPTION AND BACKGROUND

The growth of the telecommunications industry and subsequent transformation throughout the world is a result of 200 years of historical inventions and developments. By virtue of current and emerging technologies in telecommunications, people are able to use services and activities for transmitting voice or data, often in real time, for personal or business purposes. Many factors have influenced the growth of the telecommunications industry over the past 20 years, most notably: modern technology and market competition have aided this booming industry to grow in many countries throughout the world.

The growth of the telecommunications industry, which undoubtedly has provided greater access to information for many, is not without its fair share of business and regulatory problems. Like the earlier innovations of the telegraph and wired telephone, modern telecommunications is today dealing with many of the same issues encountered by its forerunners. Governments of most countries throughout the world promote technology growth, business competition, and some form of oversight or regulation to ensure its citizens benefit from fair (low) prices and job opportunities.

Multinational companies and investors, aiming to take advantage of promising business opportunities in telecommunications due to improved and innovative technologies, have aided communications growth in many countries, especially those of the Caribbean and Latin

American regions. Investors of telecommunications in the early 90s enjoyed some levels of monopoly. However, technology advances within the industry has fostered positive growth and competition, consequently leading to price reductions and improved quality of service.

Not lost on governments are the substantial tax revenues generated from the telecom business sectors. Arguments in favor of more or less government control are given daily in many countries, including one of the world's leading telecom giants, the United States of America. With over 75% of Americans using the Internet, U.S. Telecom figures estimate the U.S. leads the world in broadband users with over 94%, according to a report from the Nielson Company. Americans pay $37 billion per year in taxes, surcharges, and fees on cable TV, landlines, and wireless phone calls, according to a 2007 study by Steven Titch of the Heartland Institute. This translates to an average telecom tax of $250 per year on every U.S. household.

American and European telecommunications technology and business models have been influential on how other nations have developed their communications industry. Governments in America and Europe often promote an image of working closely with telecom companies to promote fair competition to avoid monopolistic business practices within the industry. In his book, ***Telegraph, Telephone, and Wireless: How telecom changed the world***, author Bert Lundy suggests many valid points of how advances within the industry can be aided or stifled by government policies and regulations.

The telecommunications industry as a business allows customers to have availability to a wide range of services that are available to them all the time. This model is a primary reason the business of telecom is capital intensive (Lundy, 2008). The modern era of telecom has become one of the most, if not the most, influential issues of our day. In its August 27, 2012 editorial with front cover titled the "***Wireless Issue***," Time Magazine points to the ten ways mobile technology is changing or influencing our world:

1. Democracy
2. Giving
3. Spending
4. Secrets
6. Attitudes
7. Talking
8. Seeing
9. Play
10. Health

The editorial supports in lengthy detail how our lives are being reshaped by the constant presence of telecommunications-supported wireless devices like the cell phone—and our evolving relationship with the idea of being connected to everyone and everything all the time ("10 Ways Mobile Technology," 2012).

Nations support telecommunications growth and services in very different ways, and often drive policies, regulations, and restrictions based on government leadership style or ideology—example, democratic or

communist. While some governments support full access of information sharing worldwide, some governments prefer to restrict telecommunications, often fearing that access to information sharing is not conducive to its government ideology, as harmful to the government and its societal values.

The “Arab Spring” of 2012 is a primary example of how governments in the Middle Eastern region of the world were influenced by the manner in which they allowed their citizens’ access to the Internet. When Egypt allowed its citizens full access to social media sites like Facebook, Twitter, and YouTube, its people staged a democratic revolt against its totalitarian government, overthrowing its rulers in favor of a democratic style government. Undoubtedly, modern technology and the availability of Internet resources all the time, played a very influential role on the lives of the people of Egypt, and many other countries throughout neighboring regions. This type of availability or restriction is a strong contributing factor on how the telecom industry has grown or stifled in countries throughout the Caribbean and Latin America region.

Because telecom has grown significantly over the past 20 years to become a very capital-intensive industry, corruption within governments has influenced how some countries have developed their communications infrastructures, polices and regulations. The Caribbean countries of Jamaica and Cuba studied in this thesis reveal some levels of government and business corruption influenced their local telecom industry. Jamaica was ranked

83, while Cuba was ranked 58, out of 174 countries in the 2012 World Corruption Perception Index (CPI) compiled by the watchdog organization, Transparency International. The CPI scores countries on a scale of 0 (highly corrupt) to 100 (very clean). The index measures the perception of countries in the public sector ("Jamaica 83 in World Corruption," 2012).

B. REASON FOR THIS THESIS

This thesis aims to explore how the ideological governments of Jamaica and Cuba have influenced, in very different ways, telecommunications growth within those countries. Direction and development from foreign investors positively shaped the economic growth of many Latin American, and Caribbean nations, but did not help all countries, to include Cuba, within the region. A study of various neighboring countries to Jamaica and Cuba will aid in understanding how regional developments influenced or hindered telecommunications and economic growth for the named Caribbean countries.

An exploration into the history of Jamaica and Cuba aims to show how government policies and regulations aided or stifled telecommunications for the people of these nations, in relation to service provisions and consumer pricing. Comparing and contrasting government leadership styles, coupled with issues such as corruption, laws, and poor oversight, will identify successes and failures.

A detailed analysis into political, business and foreign influence will show that Jamaica and Cuba can benefit directly from investors willing to invest heavily in these countries if the aforementioned influential

climate supports positive monetary growth for these investors. Provided the intention of state governments is not solely revenue or taxation, its citizens will directly benefit from many of the advancing and modern technologies consuming many of the world’s developing nations.

The balance in relationship between government oversight, telecommunications business investors, and consumers will be explored to examine applications best suited for market practices and performance.

C. SCOPE

This thesis will concentrate on exploring the policies and regulations of telecommunications technology in Jamaica and Cuba. A comparison in government ideology will be presented to compare development and advances of communications within the two countries. A broad range of available communications technology and business practices of various companies and investors in the last decade will provide the principal research area and timeframe.

D. ORGANIZATION AND METHODOLOGY

The focus of this research will be primarily on the comparison of government ideology, policies, regulations and market conditions of telecommunications within the Caribbean region. The thesis will encompass five chapters. Chapter II will examine Jamaica, its history, and the growth of telecommunications within that country, while Chapter III aims to provide a similar exploration of Cuba’s history and telecommunications infrastructure. Chapter IV will be a case study on the various actors influencing or hindering growth within developing Caribbean nations, and

the relationship balance between government, business, and consumers necessary for successful implementation of advancing technology like those seen in the United States and Europe. Finally, Chapter V will provide recommendations for the successful implementation of regulatory policies in the countries studied. Future research recommendation will also be explored in this chapter.

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II. JAMAICA

Figure 1. Jamaica (From Mapquest, 2006).

A. INTRODUCTION AND EARLY HISTORY

Affectionately called the "Land of Wood and Water" by its citizens, Jamaica is the most populous English-speaking country in the Caribbean, with over 2.8 million inhabitants (Figure 1). Having gained its independence from the British monarchy, the commonwealth nation of Jamaica has become heavily reliant on industry, agriculture, and its natural resources to support the country's gross domestic product.

"Out of Many, One People," considered Jamaica's national motto, adequately reflects the nation's multi-race roots (Figure 2). Her ethnic groups include: Black 75%; Afro-European 13%; East Indian and Afro-East Indian 3%; White 5%. The official language of the country is English,

with dialects of English Creole (patois), Hindi, Chinese, and Spanish common among languages heard throughout the society.

Figure 2. Jamaican Coat of Arms

A country rich in tradition and history, Jamaica was originally inhabited by the indigenous Arawak Indians (Taino Indians), before being discovered by the explorer Christopher Columbus in 1494, on behalf of the Spanish Monarchy. Columbus named his newly discovered island Santiago (Saint-James), but the name was never adopted. Instead, the island retained the name given to it by its indigenous people, Xaymaca, loosely translated to Jamaica.

The Spaniards enslaved the Arawak Indians, eventually bringing the indigenous population to extinction through disease and harsh tyrannical labor. African slaves were

later brought to the island, replacing the Indians, and were considered better suited for the harsh labor conditions imposed upon them by their slave masters. The Spaniards occupied Jamaica for approximately 160 years before it was ceded to the British, who conquered the island in 1655 as part of its colonial expansion.

The Spaniards saw little value in Jamaica, which lacked gold or silver, primarily using the island as a staging point in its scramble for wealth throughout the Americas ("Brief History of Jamaica," 1990). The Spanish instead heavily fortified Cuba and the city of Santo Domingo (Dominican Republic), which were then being used as storage sites for acquired wealth gained throughout the Americas. After being defeated in numerous attempts to acquire Santo Domingo and Hispaniola, the English expedition in 1655 under General Robert Venables and Admiral William Penn wrested the poorly defended island of Jamaica from the Spaniards—the British commanders not daring to return to England without something to show for their labors, resolved to attacking and conquering Jamaica (Roger, 2005).

The Spaniards tried twice to retake Jamaica from the British, but were unsuccessful in both attempts. The island remained under British rule until its independence in 1962. Jamaica proved hugely profitable for the British Empire during its occupation of the island, producing large quantities of sugar and other agricultural products. Ironically, Robert Venables and William Penn were condemned to the Tower—the infamous English Prison—upon their return

home to England on August 31, 1655 for their failed attempts to capture Hispaniola from the Spanish (Roger, 2005).

Though little is known during the time period of the Spanish colonization of Jamaica, a good deal more is known of the island's rich history during the British period of rule. From the period of 1655 until its independence on August 6, 1962, Jamaica thrived under slave labor, developing sugar, cocoa, indigo, and coffee. The island's export of agricultural products made the country a popular destination for English settlers.

After Spain formally ceded Jamaica to Great Britain in 1670, the island became the chief market point for slave trading throughout the West Indies. Under the Royal Africa Company, slave trading thrived, making Jamaica the center of slave trading in the Americas (Figure 3). The country's agricultural produce through slave labor enriched the wealthy landowners, until the prices of sugar dropped on the world market about the time period following the Napoleonic wars (1792–1814).

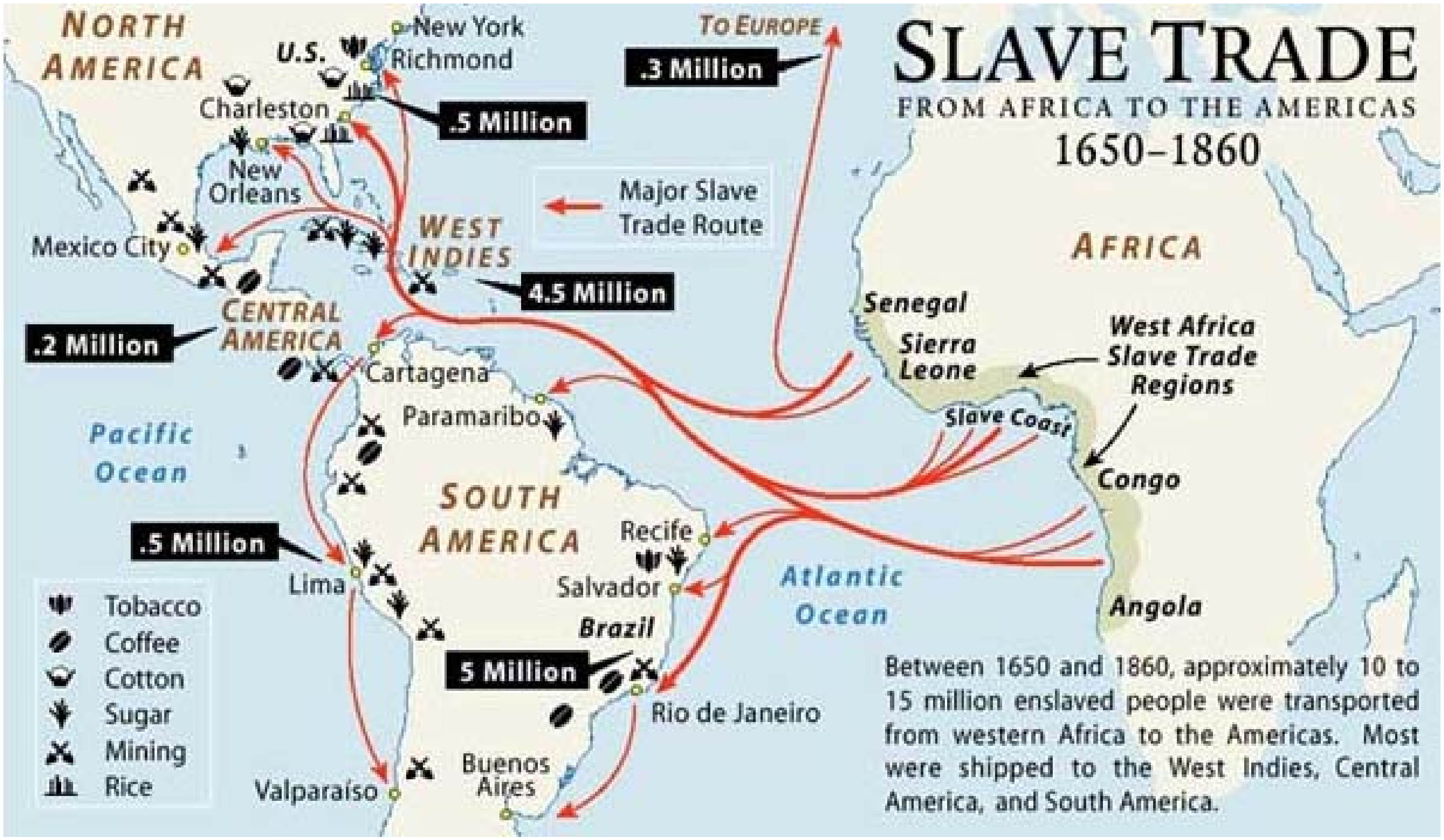

Figure 3. Slave trade routes (From Frankel, 2009).

Internal resistance for freedom by a group of runaway slaves known as the Maroons added to the woes of plantation owners and British authorities (Figure 4), who were forced to recognize the Maroons' rights to freedom and property ownership. Poor sugar prices and other external events facilitated the abolition of slave trading in 1807 and, shortly thereafter, the emancipation of slaves within the British Empire in 1834.

Figure 4. Rebellious Maroons negotiate with British Soldiers (From "Exhibit Highlights," 2010).

Under British rule, Jamaica also thrived as a major privateer and pirate port. In return, these privateers kept the other colonial powers from attacking the island ("History of Jamaica," 2013). Infamous pirates like Henry Morgan used Port Royal in Jamaica as a chief city to store acquired riches (Figure 5). Notorious Buccaneer pirates took their treasures to Port Royal, where locals led a wild and reckless lifestyle, filled with loose morals, dubbing Port Royal as one of the wickedest places on earth. The

port remained a favorite congregating location for pirates until its destruction by earthquake in 1692.

Figure 5. Admiral Sir Henry Morgan (1635–1688), Lieutenant Governor of Jamaica and infamous pirate (From National Trust Collections, 2013).

When sugar prices fell again on the world market in 1846, Jamaica’s worsening economic situation resulted in a systemic suffering and discontent among indentured workers and their plantation owners. Political protests and uprisings soon became commonplace, leading to colonial constitutional laws, and eventually direct crown colony rule in 1866. While the colonial constitutional laws were meant to benefit the white settlers, the direct crown colony rules saw settlers losing their political powers, and the installation of a governor, who formally represented the King and Queen of England. The nominated

Privy Council mainly advised the governor, and the direct crown colony rule remained in effect with amendments until 1944.

The formation of two major local political parties, the People's National Party (PNP) in 1938, and the Jamaica Labor Party (JLP) in 1943, campaigned for Jamaican independence from England. Jamaica was granted its independence on August 6, 1962. The JLP, led by Sir Alexander Bustamante (Figure 6), became the nations first Prime Minister, elected under a constitutional parliamentary democracy and a commonwealth realm (CIA, 2013). Jamaica's constitution at its inception, and to date, is based on the British model of government. The British monarchy maintains its presence in Jamaica as chief of state—a figurehead governor general represents the monarch, appointed by the monarch on the recommendation of the prime minister ("CIA, 2013).

> Duties which the Governor-General carried out in the name of the British monarchy include opening and dissolving Parliament; commissioning the Prime Minister and appointing other Ministers after elections; giving assent to laws when they have been passed by Parliament; appointing officials of Government, including diplomats, officers of the Jamaica Defense Force, Ombudsmen, the Contractor-General, and Privy Councilors. The Governor-General convenes meetings of the Privy Council, which advises him on the Prerogative of Mercy and on Pardons in capital cases. Other functions of the Governor-General include giving audience to Ministers of Government and officials both in Jamaica and overseas; receiving cabinet decisions; reading, dispatching and signing numerous documents and State papers. The Governor-General is consulted on most aspects of national life. (King's House: Governor General of Jamaica, 2013)

Figure 6. Sir Alexander Bustamante, Jamaica’s first Prime Minister (From “Sir Alexander Bustamante,” 2007).

Despite Jamaica’s early economic boom from demands for its rich bauxite mineral, agricultural products of banana, sugar and coffee, and its flourishing tourism, Jamaica through the years has been gripped with extreme political violence and power struggles between its two major political parties, the JLP and PNP. Modern day Jamaica is a major transshipment port for illegal drugs and guns from South America and Mexico to North America and Europe. Jamaica’s strategic geographic location for both legal and illegal commercial trading has resulted in major telecommunications investors to the island (Figure 7). Jamaica has seen an explosive growth in its domestic communications networks, especially after the government’s 1999 agreement to open the market for telecommunications services. This resulted in rapid growth in mobile-cellular telephone usage, while the number of fixed-lines in use has declined; combined mobile-cellular teledensity approached 110 per 100 persons in 2011 (CIA, 2013).

Figure 7. Geographic Location of Jamaica in the Caribbean Sea (From "Where is Jamaica Located," 2011).

B. BACKGROUND AND FACTS

After gaining her independence from England in 1962, Jamaica's modern history can be described as violent and economically unstable. Much of Jamaica's characterization is owed to political rivalry between the island's two major parties, the PNP and JLP. Table 1 summarizes a chronology of key events in Jamaica's history.

DATE	EVENT
1494	Christopher Columbus sights Jamaica.
1509	Jamaica occupied by the Spaniards under a license from Columbus's son; much of the indigenous Arawak community dies off from exposure to European diseases; African slaves brought in to work on the sugar plantations.
1655	The British capture Jamaica.
1670	Jamaica formally ceded to the British in accordance with the Treaty of Madrid.
1692	Port Royal, once the busiest trading center of the British West Indies and infamous for general debauchery, is devastated by an earthquake.
1838	Slavery abolished
1865	The British ruthlessly put down the Morant Bay rebellion, staged by freed slaves in response to acute hardship, and force the local legislature to surrender its powers; Jamaica becomes a crown colony.
1870	Banana plantations set up as the sugar cane industry declines in the face of competition from European beet sugar.
1884	New constitution marks the initial revival of local autonomy.
1938	Serious riots caused by unemployment and resentment against British racial policies; People's National Party (PNP) founded by Norman Manley.
1944	Universal adult suffrage introduced; new constitution providing for a popularly elected House of Representatives promulgated.
1958	Jamaica becomes a member of the British-sponsored Federation of the West Indies.
1961	Jamaica withdraws from the Federation of the West Indies.
1962	Jamaica becomes independent within the British Commonwealth with Alexander Bustamante of the Jamaica Labor Party (JLP) as prime minister.
1972	Michael Manley becomes prime minister following an impressive victory by the PNP in the general elections and pursues a policy of economic self-reliance.
1976	The PNP wins another term following elections marked by violence and proceeds to nationalize businesses and build closer ties with Cuba.
1980	Edward Seaga becomes prime minister after his JLP wins general elections. He proceeds to privatize state enterprises and to distance Jamaica from Cuba. U.S. grant Seaga government substantial aid.
1988	Jamaica badly hit by Hurricane Gilbert.
1989	PNP ousts JLP in elections, returning Michael Manley as prime minister. Manley, however, chooses to continue Seaga's policy course.
1992	Manley retires on health grounds and is succeeded by Percival J Patterson.
1993	PNP returned to office with an increased majority.
1998	PNP wins a third term; increase in violent crime reported as the economy deteriorates.
1999	April - Violent protests take place against a 30% increase in fuel prices. July - Government orders the army to patrol the streets of Kingston following a massive increase in crime.
2001	July - Troops and armored vehicles move in to restore order in the capital, Kingston, after three days of unrest leave at least 27 people dead.
2002	March - Britain's Privy Council - final court of appeal for Jamaica and other former colonies - decides to halt executions in some Caribbean countries, where capital punishment is supported as a deterrent to violent crime. Prime Minister PJ Patterson criticizes the move. October - Prime Minister PJ Patterson's People's National Party wins

DATE	EVENT
	general elections, ushering in fourth successive term in office for party and third term for incumbent premier.
2003	January - UK introduces visa requirement for Jamaicans entering UK; London says move is intended to tackle illegal immigration.
2004	March - Ousted former Haitian president Jean-Bertrand Aristide takes up temporary asylum, prompting an angry response from the new Haitian government. September - Hurricane Ivan - described as the biggest in living memory - pounds the island, destroying thousands of homes.
2005	September - Prime Minister PJ Patterson says he will step down by April 2006. Opposition leads a day of protest over price increases for utilities and public transport.
2006	February - Local government minister Portia Simpson Miller is elected as head of the ruling People's National Party. She succeeds PJ Patterson to become Jamaica's first female PM in March. October - Government survives a confidence vote in parliament over the ruling party's acceptance of a campaign donation from a Netherlands-based oil company.
2007	September - Jamaica Labor Party wins general elections, Bruce Golding becomes PM.
2008	November - Parliament votes to keep the death penalty, as Jamaica struggles to contain one of the world's highest murder rates.
2010	May-June - Dozens killed in operation to arrest alleged drug lord Christopher "Dudus" Coke. He is extradited to the U.S..
2011	October - Andrew Holness takes over as premier, after Golding quits, citing the ''Dudus'' Coke affair. December - Portia Simpson-Miller from the People's National Party wins a snap general election.
2012	January - On taking up office, Mrs. Simpson-Miller says that 50 years after Jamaica gained its independence from Britain, it is time for the country to break with the British monarchy and become a republic.

Table 1. A chronology of key events in Jamaica's history (After "BBC News on Latin America," 2012).

Through the years after her independence, democratic elections in Jamaica have been extremely violent. To date, it is not uncommon for the country's political leaders to align themselves with criminal ghetto or slum leaders, also known as "area dons," in efforts to secure votes from impoverished community residents. This has assured Jamaica's status as a corrupt nation, where illegal activities are rampant through all levels of government and society.

Area dons often align themselves and their communities to whichever political affiliation brings them protection and money. These dons routinely engage in illegal drug and gun activities, often extorting local businesses and promoting violent crimes within the country.

In May of 2010, when the United States requested the extradition of Christopher “Dudus” Coke, area don for Tivoli Gardens, a ghetto in the city of Kingston aligned to the JLP, dozens were killed in joint police and military operations to apprehend him. After Coke’s eventual arrest and extradition to the United States a few weeks later, government investigations became a public spectacle of finger pointing between the JLP and PNP.

Security forces that raided an office Coke occupied in Tivoli Gardens during the May 2010 incursion, found a copy of the extradition request during a search (Henry, 2011), indicating the area don had been tipped off prior to his arrest. After months of denial, then Prime Minister and leader of the JLP, Bruce Golding, while not admitting to tipping Coke off about the extradition request, admitted to giving the nod for a law firm to be hired to lobby the U.S. government on the extradition issue. Golding came clean on his involvement in the matter, following weeks of allegations and claims that the government had engaged the services of U.S. law firm Manatt, Phelps & Phillips to intervene, as the U.S. pushed its request for the extradition of Christopher “Dudus” Coke, area leader of the JLP stronghold of West Kingston, wanted on gun and drug

charges in the U.S. ("Jamaica PM Admits," 2010). Golding would eventually resign as Prime Minister, following intense political pressure.

Area dons generally control their communities through violence and intimidation, but provide for the poor within their communities, inheriting "Robin Hood" like status. In his research article, Damion Blake, guest columnist at the Jamaica Gleaner newspaper commented:

> The Jamaican don is a unique figure, created by a divisive and polarized partisan culture, and produced by the social and economic conditions of urban poverty and limited access to legitimate employment. I view them as governance actors who use both fear and material rewards as tools for achieving and maintaining power inside Jamaica's garrison communities. . . . A Don is a leader, a man who decides when to start wars, and when wars should end. He decides who lives and who dies. . . . Dons have a kind of social power inside garrison communities that gives them perverse legitimacy, respect, social prestige but, most of all, a deep fear among residents. Residents fear dons and the gangs they lead. Dons also have network connections outside the walls of garrison communities. One respondent who runs a community-based association remarked, "There is no don without a politician, and there is no don without his own police." (Blake, 2012)

It is not difficult to see from Blake's research that area dons in Jamaica influence not only their communities, but also the society as a whole. This is not lost on the Jamaican economy, and the telecommunications infrastructure backbone. Because of political clout and influence over residents in their respective garrison communities, area dons sometimes have control on how, when, and where companies can do business. Communications investors and

businesses are not immune from extortion rackets, whether from politicians or the area dons they are aligned with.

Despite these corruptive obstacles, most businesses in Jamaica do thrive. The communications infrastructure within the island has been largely successful because investors are willing to assume risk, due to the potential for large profit returns. Key government decisions over the past two decades have lead to significant growth in the telecommunications industry sector. The Jamaica government's decision to de-monopolize the telecommunications industry, and promote an open market to foster competition, enabled the growth for a vast range of communications technology services to the public. Government liberalization—to facilitate competition among businesses within a flexible regulatory regime, sought to gain economic benefits attached to having a competitive telecommunications sector. These benefits include (FTC & OUR, 2007):

- Increased investment and the modernization of the telecommunications sector
- Lower prices to telecommunications users
- Wider variety of and increased quality in service offerings
- Increased economic growth (FTC & OUR, 2007).

In 1998, the government's telecommunications policy also noted "a modern telecommunications infrastructure is required not only to facilitate growth, but also to be an engine of growth and development." The government listed the following policy goals (FTC & OUR, 2007):

a) The extension of wireless networks throughout the demographic and geographical spread of the country.

b) Facilitating the provision of high quality services by range of service providers
c) Promoting the build-out of networks while balancing the need of firms to be profitable with the need to provide services to un-economic and/or remote areas and disadvantaged groups in society.
d) Ensuring that the public and business sectors have access to innovative services at internationally competitive rates so as to stimulate social and economic developments.
e) Ensuring that international and domestic connectivity are efficient and cost-competitive.
f) Fostering a regulatory environment that is responsive to the needs of investors and consumers. (FTC & OUR, 2007)

The government’s policy decision to liberalize the country’s telecommunication infrastructure has resulted in significant growth for the industry to date.

> This growth underpinned a significant increase in Jamaica’s total teledensity, which leapt from 43.53 telephones per 100 people in 2001 to 100.90 in 2004. When compared with other countries, in 2004 Jamaica’s teledensity exceeded what would be expected based on its GDP per capita (Figure 8). In fact, Jamaica’s performance compares favorably to countries with much higher GDP per capita, such as New Zealand, Singapore and the United States. Interestingly, in 2004 Trinidad and Tobago had a teledensity substantially lower than Jamaica’s. Although Trinidad and Tobago’s per capital GDP is more than twice that of Jamaica, it had not yet liberalized its telecommunications market by 2004. (“Jamaica: The Benefits of Mobile,” 2012)

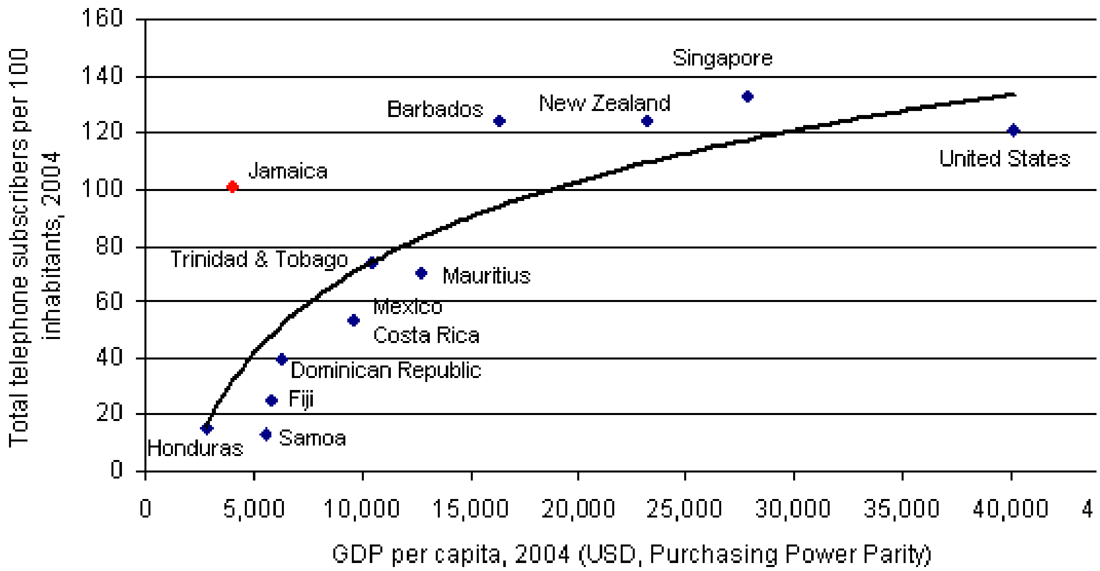

Figure 8. Cross country comparison of teledensity by income (From "Jamaica: The Benefits of Mobile," 2012).

C. TELECOMMUNICATIONS INFRASTRUCTURE AND DEVELOPMENT

Considered a third world country with a high poverty rate, Jamaica possesses a robust communications infrastructure comparable to those of most developed nations. The rapid expansion of the country's communications infrastructure in the past ten years has been astronomical, considering Jamaica had only 60,000 Internet users in the year 2000, compared to over 1.5 million users in 2010 (Figure 9).

YEAR	Users	Population	% Pen.	GDP p.c.*	Usage Source
2000	60,000	2,597,100	2.3 %	US$ 3,056	ITU
2002	600,000	2,675,504	22.4 %	US$ 3,229	ITU
2006	1,067,000	2,692,569	39.6 %	US$ 2,900	ITU
2008	1,500,000	2,804,332	53.5 %	US$ 3,710	ITU
2009	1,540,000	2,825,928	54.5 %	US$ 3,710	ITU
2010	1,581,100	2,847,232	55.5 %	US$ 4,825	ITU

Note: Per Capita GDP in US dollars, source: International Monetary Fund.

Figure 9. Jamaica Internet usage and population statistics (From "Jamaica Internet Usage," 2010).

Jamaica liberalized its telecommunications market in 2000 by licensing two new mobile operators, Digicel and Oceanic Digital Jamaica. Prior to the liberalization, Cable & Wireless, Jamaica (C&WJ) was the sole provider of both fixed-line and mobile services ("Jamaica: The Benefits of Mobile," 2012).

Operator	Technology	Spectrum	Build out Obligation	Launch
C&WJ	Time Division Multi Access (TDMA);	,800 MHz (TDMA);	None	1991
Digicel	GSM	900 MHz,	90 % geographic	April 2001
Oceanic Digital Jamaica (ODJ)	Code Division Multi Access (CDMA)	800 MHz	90% geographic coverage. In 2003 this condition was changed to 90% population coverage.	November 2001

Table 2. Mobile Operators by Network Type and Launch Date (From FTC & OUR, 2007).

Key milestones in the Jamaican telecommunications sector include the signing of the World Trade Organization's agreement on Basic telecommunications Services and the promulgation of the telecommunications Act (the Act) in March 2000. The Act specified a phased liberalization process (FTC & OUR, 2007).

Phase 1 (April 2000–September 2001)

- Licenses for provision of domestic mobile services and Internet services were issued. Licenses were also issued to companies wishing to re-sell the incumbent's international switched minutes (FTC & OUR, 2007).
    - Opened the market to competition in wireless cellular services

- Opened the market for provision of customer equipment
- Allowed companies with Single Entity Free Zone status to provide their own telecommunications services
- Opened the market to the resale of data, international voice and Internet access. (Ministry of Industry, Commerce and Technology, 2002)

Phase II (September 2001–April 2003)

- Licenses were issued for domestic voice/data facilities and service provision.

  Cable television licenses wishing to provide Internet services over their cable networks were also granted special Internet service provider (ISP) licenses (FTC & OUR, 2007).

  - Competition in domestic facilities and services
  - Cable TV providers (STVOs) being allowed to become Internet Service Providers (ISPs). (Ministry of Industry, Commerce and Technology, 2002)

Phase III (April 2003-present)

- All segments of the sector were opened to competition including the lucrative international voice and/data market. In 2007, four hundred and twenty six (426) telecoms licenses had been granted (Figure 10) (FTC & OUR, 2007).

  - All telecommunications facilities open to competition, including international voice and data services. (Ministry of Industry, Commerce and Technology, 2002)

Licences	2000	2001	2002	2003	2004	2005	2006	Total
ISP	0	45	12	3	14	2	4	**80**
ISP (STVO)	0	7	0	0	0	0	0	**7**
IVSP	0	31	10	6	5	1	0	**53**
DC	0	11	8	8	7	2	3	**39**
DVSP	0	17	8	13	6	2	2	**48**
DSP	0	22	2	5	1	2	1	**33**
FTZC	1	6	2	1	0	0	0	**10**
FTZSP	1	6	1	0	0	0	0	**8**
IC	0	0	0	48	20	5	3	**76**
INTL.SP	0	0	0	41	21	7	3	**71**
Total	**2**	**145**	**43**	**125**	**74**	**21**	**16**	**426**

Figure 10. Number of telecommunications licenses granted by Government of Jamaica as of 2006 (From FTC & OUR, 2007).

> The new competing mobile carriers introduced innovations into the Jamaican market, such as pre-paid service, which made it easier for customers to access telephone services. Previously, to obtain a telephone service, customers had to fill out various forms, have a formal address, and make a substantial deposit. The pre-paid option did not require a deposit, which by its very nature allowed customers the flexibility to have control over their budget. This was particularly attractive to low income customers, and appears to have been a major driver behind the increase in teledensity. Competition has severely reduced C&WJ's share in the mobile market. C&WJ has gone from being the sole provider of mobile service to a market share of 26% in 2005. Its main competitor, Digicel, has captured 76% of the market as of 2006. In fact Digicel's growth has been so tremendous that C&WJ has approached regulators requesting that Dicigel be declared to have significant market power. ("Jamaica: The Benefits of Mobile," 2012)

In the past decade, the telecommunications industry has moved from being a monopoly to a vibrant and competitive market, providing innovative technologies for the commercial and public sector. Investors have benefitted

greatly from the lucrative Jamaican market. After rebranding its image, Cable and Wireless Jamaica (C&WJ)—renamed LIME (Landline, Internet, Mobile, Entertainment), has seen stiff competition from Digicel, and Columbus Communications—retail operated as FLOW, in the mobile, landline, cable TV, and Internet segment.

D. POLITICAL AND SOCIAL CLIMATE TELECOMMUNICATIONS IMPACT

Jamaica’s heritage is deeply rooted in the British social class system, and gains influence from her days as a British colony. Even so, gangs who typically have stronghold in garrison communities heavily influence politics on the island.

Most facets of life in Jamaica are influenced by social status. Social class barriers are common throughout the population, with a majority belonging to the lower class.

The class structure in modern Jamaica is comprised as follows: 1% of the population is upper or upper-middle class; 18.5% falls into the “lower middle class”; and the remaining 75% or more are classified among the “lower classes”: small farmers, working class and the unemployed (“Class Structure of Jamaica,” n.d.).

Jamaica has an unemployment rate of approximately 14.1%; a significant reason the country has one of the highest crime rates in the world. The country’s murder rate in 2008 was the highest per capita in the world, dubbing Jamaica, “the most murderous country in the world” (Figure 11) (Table 3).

Figure 11. 2008 Murder Rate per capita in Caribbean and Latin American countries (From "The Caribbean: Sun Sea and Murder," 2008).

	Population	Murders	Murders per 100,000	Times US Rate
Jamaica	2,825,928	1,660	58.7	11.0
Trinidad & T.	1,229,953	489	39.8	7.4
Bahamas	309,156	82	26.5	5.0
Puerto Rico	3,971,020	890	22.4	4.2
Barbados	284,589	?	8.2	1.5
USA 2008	304,059,724	16,272	5.4	1.0

Table 3. 2008 Murders per 100,000 in Caribbean (From "Caribbean Murder Rates Soar," 2010)

Much of Jamaica's crime is due to illegal drug and gun trading, coupled with the country's high unemployment rate. The social class system, which favors the minority elites and upper middle class people for education and job opportunities, rarely enables lower class and poverty stricken Jamaicans an opportunity at a better life. Corruption is often seen across all social classes, and is a factor for many Jamaicans in everyday life. It is not uncommon for people to pay additional money on top of

required fees to government or commercial employees for basic services (example, acquisition of a driver’s license).

Despite many of the economic and social issues plaguing the island, the telecommunications sector has enabled all social classes to benefit from the governments liberalization of the telecom industry. Early Jamaica provided telecommunications landline primarily to the upper and middle class, but has seen a paradigm shift where most of the population only subscribes to mobile phone usage. The affordable cost of mobile technology on the island, due to liberalization and competition in the market, has enabled even the lower class society of Jamaicans to have mobile phone availability.

In its 2007 review of the Jamaican telecommunications sector, the government noted:

> Residential respondents who stated that they subscribe to only a mobile service are more likely to reside in the Northern (St. Ann and Trelawney) and Southern (Clarendon, Manchester and St. Elizabeth) parts of the island while those who own both types of phones are more likely to reside in the Eastern (Kingston & St. Andrew, St. Catherine, Portland, St. Thomas and St. Mary) and Western (Hanover, St. James and Westmoreland) regions. The result also revealed that Jamaicans in the upper, middle and low-income brackets are equally likely to own a mobile telephone. Respondents in the lower income bracket however, had the highest mobile only subscription rate (78%) of all income brackets, and this rate declined as the income bracket increased. Meanwhile, respondents in the upper income bracket are more likely to own both a mobile and fixed line telephone. (FTC & OUR, 2007)

Population Group	Mobile Only n=738	Fixed Line Only n=21	Mobile & Fixed n=241
Upper income	42%	2%	56%
Middle income	70%	2%	28%
Low income	78%	2%	20%
North	80%	1%	19%
South	80%	1%	19%
East	70%	2%	27%
West	75%	4%	22%

Figure 12. Socio economic profile of fixed and mobile subscribers in 2007 (From FTC & OUR, 2007).

E. GOVERNMENT AND TELECOMMUNICATIONS RELATIONSHIP

Jamaica’s telecommunications history dates back to the late 1800s, when Cable and Wireless Communications established its presence on the colony island. The British based transnational company was the major provider of telecom services in Jamaica and the Anglophone Caribbean. The company initially operated in the service of the British colonial government as the West India and Panama Telegraph Company, starting in early 1868 (Dunn & Gooden, 1998).

After Independence in 1962, Cable and Wireless continued to operate as the sole provider for telecommunications in Jamaica and the larger Caribbean region. In the first decade of political independence, the government of Jamaica strengthened its control over the

existing telecommunications infrastructure, a similar theme seen in other larger Caribbean territories, like Trinidad and Barbados, keen to demonstrate their fledging political independence. The Jamaica government acquired shareholdings in excess of 80 percent of the external telecommunications provider, rebranding the company's identity as Telecommunications of Jamaica (TOJ). Although such acquisitions were feasible propositions in the 1960s and early 70s, when the basic technology of telecommunications was still a relatively stable body of knowledge, global changes in the late 1970s and 80s rendered the task of management, financing and control of the national telecom systems more complex (Dunn & Gooden, 1998).

Jamaica's telecommunications usage volume to North America and Europe in the early 1970s and 80s continued to increase significantly (Figure 12), due to its booming tourist industry, growing commercial infrastructure, and large expatriate population living mainly in the United States, Canada and Britain. Traffic balance figures from the U.S. Federal Communications Commission (FCC) indicated that in the early 1980s and 90s, the United States to Jamaica route was among the most heavily used, accounting for a higher volume of calls between the U.S. and countries with which the U.S. had greater business relations (Dunn & Gooden, 1998). Unable to support the demand for a more robust infrastructure, due to worsening economic conditions in the early 70s and 80s, the government overhauled its ownership and regulatory policies between itself and the British transnational Cable and Wireless.

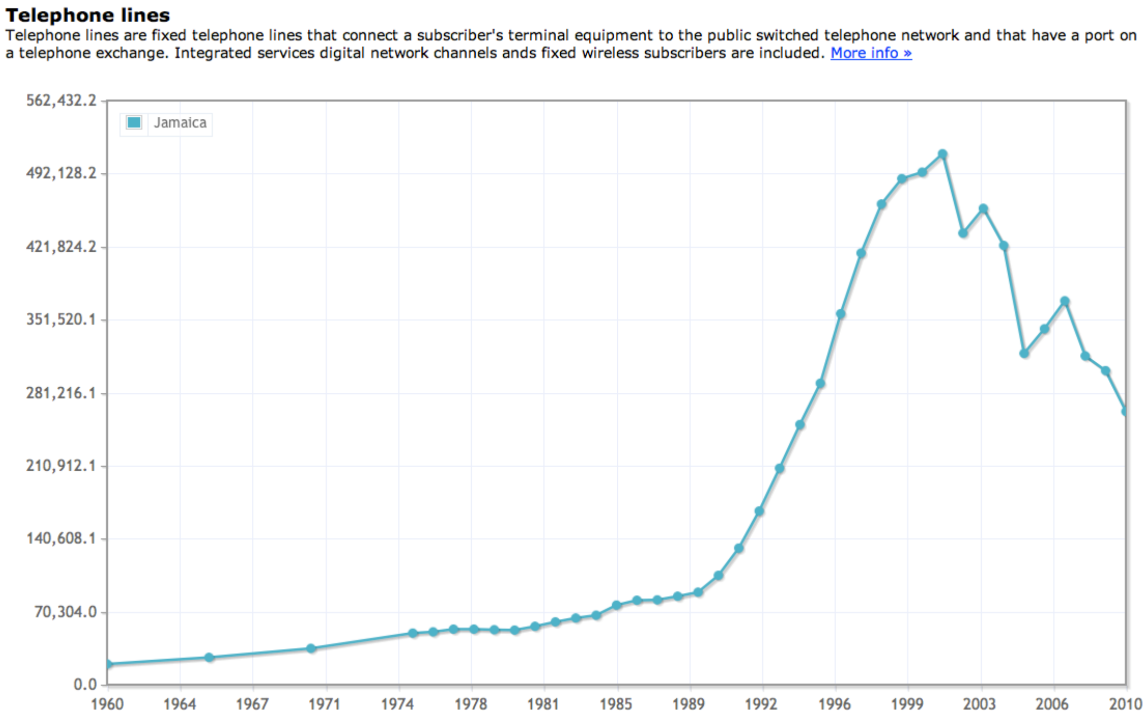

Figure 13. Jamaica's telecommunications landlines in use (From "Telephone Lines," 2011).

The period between 1980 and 1990 resulted in major reconstruction, policy, and regulatory controls between the government and Cable and Wireless. The shift in balance of ownership for the country's telecommunications infrastructure resulted in the 80 percent holding of TOJ by the government at the end of 1987, shifting to no equity ownership by 1990. Consequently, Cable and Wireless holdings moved from 9 percent to 79 percent of the overall industry (Dunn & Gooden, 1998). Telecommunications of Jamaica Limited was absorbed under Cable and Wireless, merging the domestic telephone provider (TOJ), and the international carrier (C&W), creating the Caribbean's largest company in terms of annual turnover (Dunn & Gooden, 1998).

The acquisition terms for C&W were extremely favorable, and the company was able to strive as a monopoly in the Jamaican market, due to the extensive monopoly rights grated under the licensing agreements and terms of the TOJ-C&W license. Other local and foreign telecommunications interests were not able to establish roots within the industry, because the government, in response to C&W demands, undertook steps "to ensure exclusive rights to TOJ to provide public telecommunications services in, from and through Jamaica"—official letter from then Prime Minister Michael Manley to TOJ Chairman, Mayer Matalon, 2 November 1990 (Dunn & Gooden, 1998).

The Government of Jamaica (GOJ) sold its shares of TOJ to offload the mounting costs of maintaining emerging telecommunications technologies and associated equipment, due to increased user demands on the telecommunications infrastructure. C&W-TOJ, in accordance with the monopoly licenses granted, was asked in return to increase its capital investment in the country.

The C&W main operating licenses were granted for a period to expire in the year 2013. The company was granted five exclusive licenses in 1988–90, each for 25 years, with options for extensions for a further 25 years (Golding, 2011). The agreements further guaranteed after-tax rate of returns in the range of 17.5% to 20% for C&W.

> With C&WJ established as the sole provider of the island's domestic and international telephone service,. . . the Minister responsible for telecommunications had the authority to establish minimum standards of service quality, and the company was mandated to consult and seek

> ministerial approval on a variety of regulatory and policy issues including network expansion plans. The ministry however had limited regulatory capability and was apparently satisfied with the status quo; therefore C&WJ basically regulated itself with limited government supervision. (Golding, 2011)

The 1998–90 regulatory agreements came under intense public scrutiny and criticism when details of the 1990 disclosure agreement became public—"to ensure exclusive rights to TOJ to provide public telecommunications services in, from and through Jamaica." Policy makers were criticized for granting C&W unregulated privileges, while C&W itself was criticized for demanding restrictive monopoly rights in the Caribbean (Dunn & Gooden, 1998). When Prime Minister Percival Patterson assumed office in March 1992, he directed his administration to perform a thorough review of the existing telecommunications agreements and licenses, promising the public, "greater transparency in drafting the new Telecommunications Act."

Under the Patterson government, the country took major reconstruction steps to de-monopolize its telecommunications industry, with goals of attaining liberalization to create competition, stimulation, and a knowledge-based connected society. The phased liberalization, which began in September 1999, and was completed in March 2003, made Jamaica the first of the English-speaking Caribbean islands to embark on a path of market liberalization in telecommunication (Golding, 2011).

> Similarly, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, acting under the auspices of the Organization of Eastern Caribbean States (OECS),

> negotiated with the Cable & Wireless (C&W) companies operating in each of these states for the termination of the C&W exclusivity rights in their countries. The agreement between the OECS states and the C&W companies was signed in April 2001. This agreement featured a phasing out of the C&W exclusivity rights over two periods. ("Jamaica: The Benefits of Mobile," 2012)

The monopoly right terminations, which became a difficult and controversial process, required compensation from the GOJ to C&W for the early termination of its licenses and 25-year options. While the total monetary compensation was not divulged to the pubic, it is surmised that a substantial compensatory fee was paid to C&W for the buy out. The first phase of Jamaica's telecommunications liberalization involved the negotiation of an agreement with CWJ, for the early termination of CWJ's monopoly rights. In September 1999, Jamaican regulators successfully concluded the agreements with CWJ that provided for the termination of CWJ's monopoly, and the liberalization of the telecommunications sector on a phased basis (Golding, 2011).

Deregulation of the Jamaican telecommunications industry was met with vibrant responses from businesses keen to provide services in the areas of international service providers (Internet), domestic carriers, international voice and data transmitters, ISP cable providers, and domestic voice (landline and mobile). From 2001-2005, about 200 entities received close to 400 licenses to provide telecommunications services (Golding, 2011). As of 2013, approximately 20 firms are operational in the telecommunications industry from the original licenses granted.

At the onset of deregulations, spectrum licenses were granted for various frequency ranges, supporting numerous mobile technologies. These included Global System of Mobile (GSM), Code Division Multiple Access (CDMA), and Time Division Multiple Access (TDMA) (Table 2). Licenses were granted for domestic mobile, voice, data and information services. These licenses were granted at auctions held by the government in December 1999 and January 2000, and proved financially successful, netting U.S.$92.5 million to the Jamaican treasury, or just under U.S.$40 per capita (Golding, 2011).

The new telecommunications entrants immediately fostered a competitive business environment, and set out to meet a main stipulation for operating in the Jamaican telecommunications sector. Licenses were granted for 15-year increments, and required telecommunications operators to build their network infrastructure to support at least 90% of the country's geography within 5 years of receiving their licenses. The exception to this stipulation was C&W, who did not have to meet the network infrastructure build-out requirement. The modern telephony of the island to date is summarized as follows:

> **Telephone system: general assessment:** Fully automatic domestic telephone network □
>
> **Domestic:** The 1999 agreement to open the market for telecommunications services resulted in rapid growth in mobile-cellular telephone usage (Figure 13), while the number of fixed-lines in use has declined (Figure 12); combined mobile-cellular teledensity approached 120 per 100 persons in 2010 □
>
> **International:** Country code—876; the Fibralink submarine cable network provides enhanced

delivery of business and broadband traffic and is linked to the Americas Region Caribbean Ring System (ARCOS-1) submarine cable in the Dominican Republic; the link to ARCOS-1 provides seamless connectivity to U.S., parts of the Caribbean, Central America, and South America; satellite earth stations - 2 Intelsat (Atlantic Ocean) (2008). ("Jamaica Telecommunications,"2011)

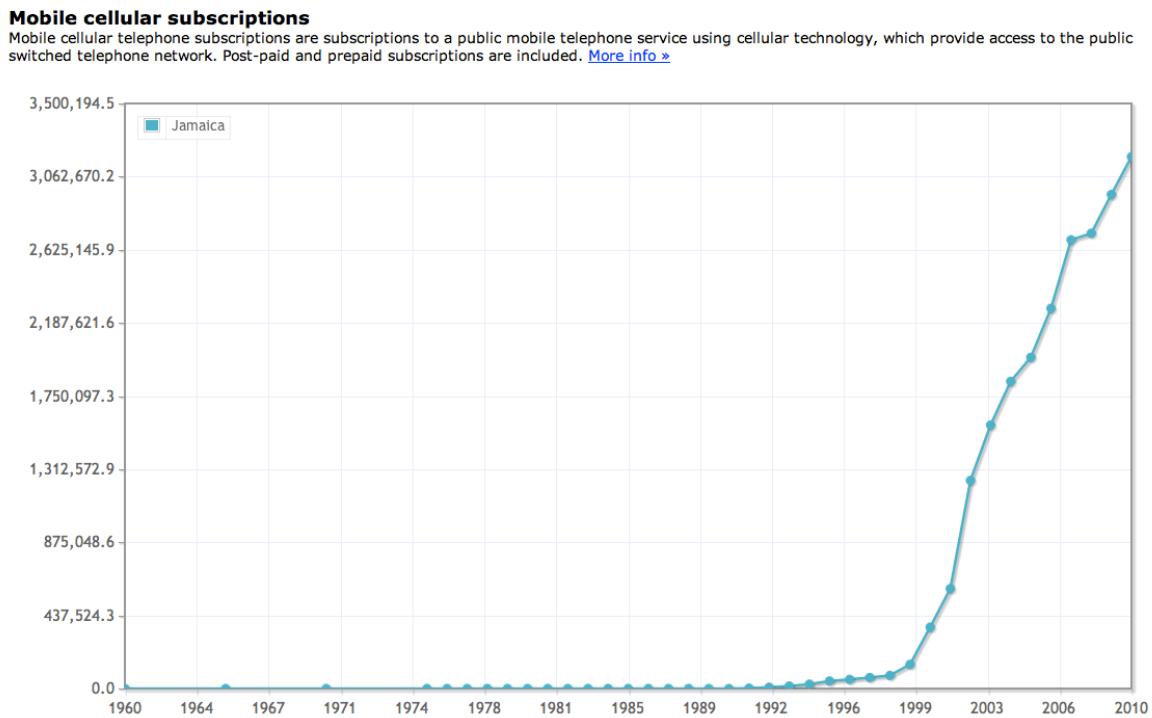

Figure 14. Jamaica's Mobile Cellular Subscription in use (From "Mobile Cellular Subscriptions," 2011).

To date, the major operators in the market for telecommunications on the island include Columbus Communications Inc. (CCI)—retail operated under the trade name FLOW; Mossel—retail operated under the trade name Digicel; Oceanic Digital Jamaica—now Claro; and CWJ—retail operated under the trade name LIME.

1. FLOW

FLOW Jamaica is owned by Jamaican/Canadian billionaire Michael Lee Chin, and is a member of CCI, which was incorporated in Barbados in 2004. FLOWs primary market portion within the telecom industry is the provision of broadband Internet, cable television, and digital landline services (voice Internet) via a fiber optic network. Flow has expanded significantly over the years since its entry into the market by rapidly acquiring smaller cable operators. The company boasts a 320 Giga bits per second (Gbps) broadband network, the highest in the country, with excess capacity estimated at 75%. FLOWs 2005 entry into the Jamaican market has seen significant decreases in prices (excess of 60%) to cable customers of ADSL and other broadband services. The company offers bundle packages similar to those seen by cable operators in the North American markets, while providing corporate businesses high-speed Virtual Local Area Networking (VLAN), collocation, dedicated IP services and international private lines (Golding, 2011).

2. Digicel

Digicel, launched in 2001, is a privately owned company headed by Irish billionaire, Denis O’Brien. The company is headquartered in the Jamaican Capital of Kingston, where its core staff operates out of its newly constructed U.S.$65 million office building. The company provides GSM mobile services across the island at cheap rates for various personal and business consumers. When the company launched its services in April 2001, it set a goal of subscribing 100,000 customers within the first five

years. The company surpassed its initial customer goal within the first 100 days of operations on the island. Never before in the country's history of mobile telecommunications had such tremendous growth been seen in a network, as Digicel broke record after record on its way to surpassing its major competitors as the mobile provider with the largest customer base in the island (Golding, 2011).

> To give an idea of Digicel's pace of growth, it took LIME, its major competitor approximately 10 years to reach the 400,000-customer mark. In comparison, it took Digicel about 13 months to reach the same figure. Digicel's customer base in 2010 was over 2.1 million, in a population of 2.8 million. The company currently commands approximately 75% of the mobile market share in Jamaica. (Golding, 2011)

Digicel's ability to build-out its network infrastructure in rural areas across the island has been one of the key contributors to its success. With over 1000 cellular towers spread across the island, Digicel has provided a robust and reliable network, raising the standards for competitors in the arena of acceptable cellular coverage and services.

Also key to its success in the island is Digicel's marketing strategy. It provides cheap phones, affordable price plans, and prepaid flexible options to customers. The company is heavily invested in many cultural promotion aspects on the island to include sports, music, and community services. The company's rapid expansion has enabled it to enter other Caribbean and Central American countries. Digicel's operating turnover is estimated at over U.S.$1 billion.

3. LIME

C&WJ started offering mobile cellular service in 1991 using TDMA technology. It eventually switched to GSM due to emerging technologies, and problems across its networks. On October 31, 2008, in response to intense competition from Digicel and Claro in the mobile cellular subscription market, CWJ rebranded its image and renamed the company LIME. The company aimed to market itself as an advance leader in the telecommunications industry, bringing innovative approaches to enhance customer satisfaction. At the center of LIME's transformation plan was the introduction of a 3G wireless network. LIME spent U.S.$30 million to upgrade its network to 3G (Golding, 2011). LIME became the first company in Jamaica and the Caribbean region to provide customers with mobile television services, when it completed the 3G-network upgrade in November 2010.

Despite LIME's ability to provide its customers the cutting edge technology of watching premium television channels on their phones, to include pay-per-view, the innovation has not aided the company's bottom line growth, as the company reported losses in excess of J$3 billion at year-end March 2010 (Golding, 2011). LIME reported first quarter losses for 2011 at J$1.3 billion, indicating the company's continuing difficulties to compete in the mobile cellular market.

> A major debilitating factor has been its operating expenses. For the quarter under review operating expenses came to $3.8 billion, a 25 per cent increase on last year. Employee expenses climbed to $1.10 billion while administrative, marketing and selling expenses came in at $1.66

> billion. All in all, the Group recorded an operating loss before restructuring costs of $863 million. This compares with $216 million for the quarter ended June 30th, 2010. (Edwards, 2011)

Managing director of LIME, Gary Sinclair has stated that the losses have been disappointing, but the company is committed to, and will continue to focus on those areas of the mobile business, while also making efforts to obtain a level playing field within the regulatory landscape.

4. Claro

Prior to its acquisition by America Movil, MiPhone, now rebranded Claro, was 51% owned by Centennial Communications, and 49% owned by Oceanic Digital Communications at its startup in 2001. In 2002, Centennial sold all its shareholdings to Oceanic for a rumored J$1. Under Oceanic Digital Communications, the brand name "MiPhone" was adopted to promote the North American CDMA standard technology into the mobile market. Oceanic's MiPhone competed poorly against Digicel and LIME due to its marketing strategy aimed at building its infrastructure primarily only in metropolitan markets. Despite loans of U.S.$30 million to build an island wide network, poor project management, cost overruns, and politics plagued the network infrastructure build out of MiPhone.

In 2007, America Movil, owned and operated by Mexican telecommunication mogul Carlos Slim, entered the Jamaican market by purchasing MiPhone for an estimated U.S.$70 million. Industry sources believe America Movil's decision to enter the Jamaican telecommunications market was in retaliation to Digicel's entrance into the Honduras and El Salvador market. At the time of its acquisition by America

Movil, MiPhone had approximately 100,000 subscribers, and another 200,000 virtual mobile network operations (VMNO) customers.

America Movil immediately rebranded the MiPhone name to Claro, and at its launch of Claro Jamaica, stated it would be using Jamaica as a launch pad into other Caribbean English speaking countries, the United States, and Great Britain. Claro invested heavily in the backbone infrastructure of its network, first shifting from CDMA to the more accepted GSM technology. The company continued with an island wide network expansion, increasing cell sites, and improving connectivity. In 2009, the company claimed it overtook lime in customer subscriber count. In June 2010, Claro announced it would be investing U.S.$300 million or more than J$26 billion over a 12-month period to boost network capacity (Golding, 2011).

Claro's spending and expansion efforts were to achieve its stated goal of becoming the number one mobile cellular provider to the island, and to overtake Digicel in market share. The company opened 261 locations across the country and a J$18 million customer service facility in Kingston. It engaged in aggressive and confrontational advertising campaigns, primarily targeting Digicel. Frequent promotional price reduction by Claro was also a tool used to bring market prices down within the industry. Competitors generally had no choice but to provide their versions of promotional price reductions to maintain their edge of the market share.

Claro also allied with LIME in tower site sharing agreements; these signed deal agreements were viewed as

another indicator Claro was aggressively targeting Digicel, and challenging its role as the leader in Jamaican mobile telecommunications. Cross network calls between Claro and LIME were also lower (J$12), compared to Digicel's cross network charges (between J$15.80–J$17.70).

In 2011, Claro agreed to sell its infrastructure and market share in Jamaica to Digicel. In return, Digicel agreed to sell its infrastructure and market share in Honduras and El Salvador to America Movil. The move came as a major surprise to market analysts, who had watched the amicable relationship between Claro and LIME blossom as strengthening competitors to Digicel in Jamaica. The sales, awaiting regulatory approval in all the countries, would mean Digicel's market share of the deal in Jamaica would increase from 2.1 million subscribers, to approximately 2.79 million. In comparison, LIME has approximately 760,000 subscribers.

F. CHAPTER SUMMARY

Prior to Jamaica's independence, British transnational company Cable and Wireless Communications established its presence around the late 1800s on the colony island as the major provider of telecom services.

After Jamaica gained its independence, C&W continued as a monopoly company, morphing through the 70s and 80s as a majority state owned company (TOJ), and again back to a majority owned monopoly private company (C&WJ).

Citing an aging telecommunications infrastructure, and mounting financial costs, the Government of Jamaica sold its shares to C&WJ, granting the company extremely generous

monopoly rights. However, in the late 1990s, the GOJ, with increasing pressures from the public, undertook steps to de-monopolize and liberalize the country's telecommunications industry.

As the first country in the region to liberalize its communications industry, the island has seen vibrant results for all industry sectors dependent on telecommunications, and steady increase in its mobile teledensity (120 per 100 persons as of 2010).

Of the 400+ licenses granted by the government at the onset of liberalization in 2000, a handful of companies have emerged as major providers of telecommunications on the island. These include:

- FLOW-broadband Internet, cable television, and digital landline services (voice Internet) via fiber optic network.
- Digicel-GSM mobile services across the island at cheap rates for personal and business use.
- LIME-initially provided TDMA mobile cellular service, but converted to GSM mobile services. LIME is a CW&J subsidiary. LIME has lost significant market shares to Digicel over the years.
- CLARO-initially America Movil, then Mi-Phone, the Mexican telecommunications Mogul Carlos Slim owned company has sold its Jamaican Market shares to Digicel, in exchange for Digicel selling its market shares in Honduras and El Salvador to America Movil in 2011. Portions of the deal are awaiting government approval in the countries of interst.

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III. CUBA

Figure 15. Cuba (From Mapquest, 2006).

A. INTRODUCTION AND EARLY HISTORY

The Republic of Cuba, the only communist state in the Caribbean region, has endured a rich history of strife among its people, who to date, continue to struggle for democratic ideals against its government. Home to 11 million inhabitants, Cuba is the most populous nation in the Caribbean, and the largest in terms of land mass area size within the region (Figure 15). Her ethnic groups include white 65.1%, mulatto and mestizo 24.8%, black 10.1% (2002 census) (CIA, 2013).

Originally inhabited by the Arawak Indians, the island was discovered by Christopher Columbus on October 28, 1492

on his first voyage to the Americas. Columbus claimed the island as a Spanish territory on behalf of the King and Queen of Spain. Cuba’s period under Spanish Colonization ended in 1898 at the conclusion of the Spanish-American war. The Treaty of Paris established Cuban independence from the United States in 1902, after which the island experienced a string of governments mostly dominated by the military and corrupt politicians (CIA, 2013). Under the Fidel Castro regime that came to power in 1959, Cuba’s independence from America on May 20, 1902, or any other date, is not recognized as a day of independence for Cuba by the government.

At the onset of its independence, Cuba’s economic and political infrastructure was weak, and had to rely heavily on the United States’ early military occupation for stability. Cuba’s post independence period is best described by political turmoil, crippling economics, and human rights struggles.

Under Spanish rule during the period of 1492–1898, except for a brief occupation by the British in 1762 before being returned to Spain in exchange for Florida (Treaty of Paris-1763), the colonial period of Cuba led to the eventual extinction of the indigenous Arawak Indian population. Most perished in the first century of colonization from disease brought to the island by the Spanish, harsh labor conditions, and tyrannical treatment by the early Spanish settlers.

The Spanish Conquistador, and Governor of Cuba, Diego Velazquez De Cuellar is credited with establishing the first Spanish settlement at Baracoa in 1511. Upon

establishing themselves on the island, the Spanish settlers subjugated the natives under a system known as encomienda (Yeager, 1995).

> Encomienda differed from slavery in that the Crown imposed inheritance, trading, and relocation restrictions on encomen-deros. Such restrictions cost the Crown revenue by providing incentives for colonists to deplete more quickly, the stock of native labor, and by keeping native labor in areas of low-revenue productivity. This loss of revenue makes the Crown's preference for the encomienda curious. The Crown opted for the encomienda, however, to secure its rule and to satisfy an ideological bias against slavery. (Yeager, 1995)

Though the relationship between the indigenous Arawak Indians and the Spanish settlers was tyrannical in nature, the settlers were shown by their Indian slaves how to grow and cultivate tobacco for eventual consumption as cigars. Cuba remained a Spanish possession for almost 400 years (1511–1898) with an economy based on plantation agriculture, mining, and the export of sugar, coffee and tobacco to Europe and later to North America ("History of Cuba," 2013). African slaves, imported into the island to replace the dwindling indigenous population, performed most of the backbreaking field labor which led to Cuba's early agricultural success. Cuban cigars to date have been a huge economic factor for the island, generating sales of over U.S.$416 million for the year ending 2012 ("Cuba Says Cigar Sales," 2013). According to data it provides to the United Nations, Cuba was the only nation in 2006, in the world, which met the World Wide Fund's definition of sustainable development; having an ecological footprint of less than

1.8 hectares per capita and a Human Development Index of over 0.8 for 2007 (World Wide Fund, 2006).

Though the Spanish monarchy opposed the ideology of slavery at the height of its colonial expansion during the 15th century, plantation owners in Cuba imported thousands of African slaves from other Spanish colonies throughout the America’s to sustain their plantation crops. During the ten month period of occupation by the British in 1762 when Admiral George Pocock, during the Seven Years war, captured the port of Havana, a huge influx of African slaves were brought into the country. The Haitian revolution of 1791-1804 also saw Spanish slave owners fleeing the Haitian slave rebellions, bringing large numbers of their slaves into Cuba. Over a half million African slaves eventually made their way into Cuba to sustain the island’s numerous plantations.

During the colonization under Spanish rule, Cuba thrived economically, supplanting Hispaniola as Spain’s center of operations in the Caribbean, making the island an important staging base and economical contributor for the Spanish crown. This further subjected the island to colonial control much longer than other colonialized countries in the region. Havana became the launching point for the annual treasure fleets bound for Spain from Mexico and Peru (CIA, 2013).

Despite the aid of the slave trade to cultivate Cuba’s agriculture for wealthy landowners, most colonists, with influence from the Spanish Monarchy, shared the ideology of a dislike for slavery. In the 19th century, Cuba thrived as a producer of sugar, coffee, and tobacco, but suffered

economically due to Spanish trade regulations, which aimed at preserving Spain's trade routes (to protect her monopoly position in the Caribbean). The abolition of the slave trade in 1820 by Spain, and the lifting of Spanish trade restrictions on the island resulted in Cuba becoming a viable economic trading partner of agricultural produce, with 82% of its sugar trade going to its main export partner, the United States. The practice of slavery continued in Cuba 21 years after the end of the U.S. civil war (Nichols & Torres, 1998), with its colonial master Spain, gaining most of the economic benefits of Cuba's successes. The eventual abolition of slavery for Cuba was a double-edged sword, as economic conditions were made difficult because wealthy landowners were forced to pay for more expensive labor to maintain agricultural productivity.

Cuba's geographic location in the Caribbean Sea, and proximity to North and Central America made the island a prime access location for foreign investors. Despite this, "as a slave powered agricultural society dominated by a colonial master, Cuba had little opportunity to develop its own economic and political infrastructure. The result was grinding poverty and political instability" (Nichols & Torres, 1998).

The early 20th century in Cuba's history is one that reflects the island's importance to global power countries in the world. As Spain's empire decreased as a global super power, the emergence of Cuba's northern neighbor, the United States, as a global super power, proved critical to the island's independence and chaotic future. Spanish rule

eventually provoked an independence movement, and occasional rebellions were harshly suppressed (CIA, 2013).

With many U.S. citizens residing in Cuba, and millions of dollars from U.S. businesses invested in Cuba, independence movements by Cuban citizens desiring to be free of Spanish colonialism was watched cautiously by the American government, which was keen to protect U.S. citizens and business interests. Jose Marti, a Cuban writer living in the United States, gained support from his U.S. sanctuary to put together a pro-Cuban revolution aimed at gaining Cubans their independence. Though he died in revolutionary fighting in Cuba, his efforts are considered key to the United States' intervening in Cuba's affairs to protect U.S. citizens and business interests.

When the U.S. warship Maine exploded and sank on February 15, 1898 while visiting Havana, Cuba, the United States blamed Spain for the explosion, and declared war on Spain. The war lasted for only a few months, and culminated when Spain signed a peace treaty on December 10, 1898, giving the United States control of Cuba, Puerto Rico, the Philippine Islands, and Guam. American intervention during the Spanish-American War in 1898 assisted the Cubans in overthrowing Spanish rule and is credited with significantly aiding Cuba's independence (CIA, 2013).

Tomas Estrada Palma, who had taken leadership from Jose Marti after his death, became the new leader of the Cuban Revolutionary Party, the independence movement, and later the first President of Cuba (Figure 16). Estrada Palma had been an influential Cuban General in the Ten Year Wars—liberation conflicts fought against Spain for

independence (1895-1898), and had been captured by the Spanish and exiled to the United States. Estrada Palma's time as an exile in the United States was spent lobbying the U.S. government to intervene in the Cuban conflict for independence. On April 20, 1898, the U.S. Congress passed a joint resolution that acknowledged Cuban independence, and demanded that the Spanish government give up control of the island (U.S. Department of State, 2009). The Spanish-American war was merely an extension and conclusion of Cuba's revolutionary Ten Year Wars for independence.

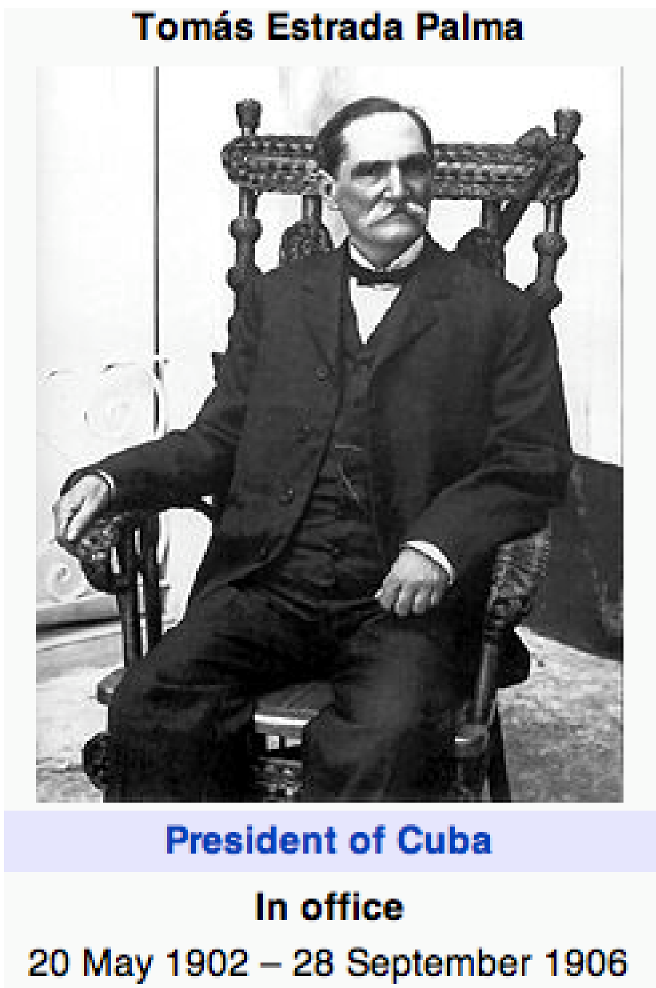

Figure 16. Tomas Estrada Palma, Cuba's first President (From "Cuban Herritage Collection," 2012)

At the end of the Spanish-American war, Cuba had merely traded their colonial masters for a super power nation with significant capital interest already invested in the country, and a political agenda to rid the region of European colonialism. American investors quickly moved in to take advantage of conditions favorable for business, and by 1902, U.S. companies controlled 80% of Cuba’s ore exports and owned most of the sugar and cigarette factories (Canton Navarro, 2001). By 1905, approximately 10% of Cuban lands were owned by Americans cultivating sugar cane and tobacco plantations (Canton Navarro, 2001). These industries blossomed, in spite of the Foraker Amendment, which prohibited the U.S. occupation government from granting privileges and concessions to U.S. investors; the Cuban economy was soon dominated by U.S. capital (Canton Navarro, 2001). An unintended consequence of American business domination in Cuba, coupled with frequent American political meddling in Cuban affairs, was the growing gap between the country’s rich and poor.

Between the time of the American military occupation in Cuba (1898−1902), efforts were made by the American administration to return the sovereignty of Cuba to Cubans as a democratic state. Highly restrictive elections for lower level government positions were held on June 16, 1900, between several parties, electing mayors, treasurers and attorneys to the country’s many municipal levels. These voting restrictions were limited to literate Cubans older than 21, and with properties worth more than U.S.$250 (Canton Navarro, 2001). Terms lasted for a period of one year, and functioned as placeholders for Cuba’s general election of a president.

As a pre-condition to granting Cuba its independence, the United States enacted the Platt amendment, defining the terms of U.S.-Cuba relations. The amendment provided articles, which undermined Cuba's self-rule and are summarized as follows ("History of Cuba," 2013). Articles I–VII are listed below the summary:

1. *Treaties with foreign powers:*
   Cuba would not transfer Cuban land to any power other than the United States.
2. *Public debts:*
   Cuba would contract no foreign debt without guarantees that the interest could be served from ordinary revenues.
3. *Intervention to maintain independence:*
   The right to U.S. intervention in Cuban affairs and military occupation when the U.S. authorities considered that the life, properties and rights of U.S. citizens were in danger.
4. *Acts during military occupation:*
   Cuba was prohibited from negotiating treaties with any country other than the United States, "which will impair or to impair the independence of Cuba."
5. *Sanitation of cities*:
   Cuba was prohibited to "permit any foreign power or powers to obtain … lodgment in or control over any portion" of Cuba.
6. *Island of Pines*:
   The Isle of Pines (now called Isla de la Juventud) was deemed outside the boundaries of Cuba until the title to it was adjusted in a future treaty.
7. *Coaling stations*:
   The sale or lease to the United States of "lands necessary for coaling or naval stations at certain specified points to be agreed upon." The amendment ceded to the United States the naval base in Cuba (Guantánamo Bay) and granted the right to use a number of other naval bases as coal stations (Canton Navarro, 2001). ("History of Cuba," 2013)

***ARTICLE I*.**

The Government of Cuba shall never enter into any treaty or other compact with any foreign power or powers which will impair or tend to impair the independence of Cuba, nor in any manner authorize or permit any foreign power of powers to obtain by colonization or for military or naval purposes, or otherwise, lodgment in or control over any portion of said island. ("The Platt Amendment," n.d.)

***ARTICLE II*.**

The Government of Cuba shall not assume or contract any public debt to pay the interest upon which, and to make reasonable sinking-fund provision for the ultimate discharge of which, the ordinary revenues of the Island of Cuba, after defraying the current expenses of the Government, shall be inadequate. ("The Platt Amendment," n.d.)

***ARTICLE III*.**

The Government of Cuba consents that the United States may exercise the right to intervene for the preservation of Cuban independence, the maintenance of a government adequate for the protection of life, property, and individual liberty, and for discharging the obligations with respect to Cuba imposed by the Treaty of Paris on the United States, now to be assumed and undertaken by the Government of Cuba. ("The Platt Amendment," n.d.)

***ARTICLE IV*.**

All acts of the United States in Cuba during its military occupancy thereof are ratified and validated, and all lawful rights acquired thereunder shall be maintained and protected. ("The Platt Amendment," n.d.)

***ARTICLE V*.**

The Government of Cuba will execute, and as far as necessary, extend the plans already devised, or other plans to be mutually agreed upon, for the sanitation of the cities the island, to the end that a recurrence of epidemic and infectious diseases may be prevented, thereby assuring protection to the people and commerce of Cuba, as well as to the commerce of the Southern

> ports of the United States and the people residing therein. (“The Platt Amendment,” n.d.)
>
> *ARTICLE VI*.
>
> The Island of Pines shall be omitted from the boundaries of Cuba specified in the Constitution, the title thereto being left to future adjustment by treaty. (“The Platt Amendment,” n.d.)
>
> *ARTICLE VII*.
>
> To enable the United States to maintain the independence of Cuba, and to protect the people thereof, as well as for its own defense, the Government of Cuba will sell or lease to the United States lands necessary for coaling or naval stations, at certain specified points, to be agreed upon with the President of the United States. (“The Platt Amendment,” n.d.)

On December 31, 1902, Tomas Estrada Palma, who had become a naturalized U.S. citizen, while still residing in the United States as an exile from the Ten Year Wars, was elected president in a one sided affair, returning to Cuba some four months after being elected president to take office. The other candidate, General Bartolomé Masó withdrew his candidacy in protest against favoritism by the occupational government, and the manipulation of the political machine by Estrada Palma’s followers (Canton Navarro, 2001).

Cuba’s post independence period was heavily influenced by American politics and economics. Until 1934, when the Platt amendment was repealed, the United States intervened regularly into Cuban affairs, causing discontent among many Cubans who yearned to govern their country without external influence. The political climate during the first three decades was tumultuous at best, with elected presidents sometimes viewed as being heavily influenced by the Untied

States, and not necessarily conducting the government in the best interest of the Cuban people.

Fulgencio Batista who had served as president from 1940 to 1944, returned to Cuba after living in the United States, to again run for the presidency in 1952. Facing what seemed like certain defeat, Batista staged a military coup, seizing power as a dictator president. His actions in suspending the Cuban constitution, and aligning his government with wealthy sugar plantation landowners, increased the economic gap and discontent between the rich and poor in Cuba. Batista employed extensive corruption within his government, partnering with U.S. mafia elements to profit from illegal mob activities being conducted in Havana. The Batista government became increasingly oppressive to its people, as officials profited from widespread corruption and exploitation of Cuban interests.

> To quell the growing discontent among the populace—which was subsequently displayed through frequent student riots and demonstrations—Batista established tighter censorship of the media, while also utilizing his anti-Communist secret police to carry out wide-scale violence, torture and public executions; ultimately killing anywhere from 1,000 [Rummel, 1979] to 20,000 [Lyndon B. Johnson School of Public Affairs, 1978] people. ("Fulgencio Batista'" 2013)

As economic hardship led to frequent demonstrations, the country became increasingly unstable both politically and economically. In addition to a dislike for their corrupt dictator government, the Platt amendment became a reminder to many Cubans of wealthy American business owners and U.S. government interference in Cuban affairs,

eventually becoming a catalyst for Cuban revolutionaries seeking to overthrow their dictator President.

> The 1959 revolution that brought Fidel Castro to power was, in large part, a reaction to U.S. control and a manifestation of years of economic hardship and instability. In the 1960s Cuba moved into the Soviet political and economic orbit and, as the first socialist state in Latin America, became the focus of Cold War tensions in the region. (Nichols & Torres, 1998)

At the time of his defeat and ouster from Cuba by Fidel Castro's revolutionary guerilla fighters on new years day 1959, Batista had amassed enough of a personal fortune gained from corruption, to flee to the Dominican Republic.

Like Batista before him, Castro viewed the strict control of the country's communications infrastructure as a necessary tool of governorship over his people, choosing not to allow freedom of communications within the country, and consolidating the telecom infrastructure under state control. Though Cuba's telecommunications history is a facet of foreign control, innovations, and eventual state ownership, a majority of Cubans today do not own phones, or have access to electronic information.

Cuba has the lowest mobile phone and Internet penetration rates in the region, and is also among the lowest for fixed-line tele-density (Lancaster, 2013). Fixed-line density remains low at 10 per 100 inhabitants; mobile-cellular service is expanding, but remains at only about 10 per 100 persons (CIA, 2013). Fixed-line and mobile services remain a monopoly of the government-controlled Empresa de Telecomunicaciones de Cuba (Etecsa Cubacel) (Lancaster, 2013).

Cuba is keen to improve its telecommunications infrastructure, having recently ventured with countries like Venezuela and Mexico to improve much of the country's antiquated equipment and backbone infrastructure. These joint-venture partnerships to modernize the telecom infrastructure have shown the willingness of the current government administration to compromise on its socialist ideals. Efforts however are regularly hampered by the country's difficulty to meet basic electricity demands. Since telecommunications is heavily reliant on electricity, the growth of Cuba's telecommunications industry has been severely affected, and has slowed expansion efforts at improving the country's telecommunications infrastructure.

An additional contributor compounding Cuba's many problems is the difficult relationship with the U.S. that resulted in years of embargo against the island. The embargo has adversely affected the country's ability to modernize its telecoms infrastructure.

B. BACKGROUND AND FACTS

DATE	EVENT
1492	The navigator Christopher Columbus claims Cuba for Spain
1511	Spanish conquest begins under the leadership of Diego de Velazquez, who establishes Baracoa and other settlements.
1526	Importing of slaves from Africa begins.
1762	Havana captured by a British force led by Admiral George Pocock and Lord Albemarle
1763	Havana returned to Spain by the Treaty of Paris.
	Wars of independence
1868-78	Ten Years War of independence ends in a truce with Spain promising reforms and greater autonomy - promises that were mostly never met.
1886	Slavery abolished.
1895-98	Jose Marti leads a second war of independence; U.S. declares war on Spain.
1898	U.S. defeats Spain, which gives up all claims to Cuba and cedes it to the U.S..
	U.S. tutelage
1902	Cuba becomes independent with Tomas Estrada Palma as its president; however, the Platt Amendment keeps the island under U.S. protection and gives the U.S. the right to intervene in Cuban affairs

DATE	EVENT
1906-09	Estrada resigns and the U.S. occupies Cuba following a rebellion led by Jose Miguel Gomez.
1909	Jose Miguel Gomez becomes president following elections supervised by the U.S., but is soon tarred by corruption..
1912	U.S. forces return to Cuba to help put down black protests against discrimination.
1924	Gerado Machado institutes vigorous measures, forwarding mining, agriculture and public works, but subsequently establishing a brutal dictatorship.
1925	Socialist Party founded, forming the basis of the Communist Party.
1933	Machado overthrown in a coup led by Sergeant Fulgencio Batista.
1934	The U.S. abandons its right to intervene in Cuba's internal affairs, revises Cuba's sugar quota and changes tariffs to favor Cuba.
1944	Batista retires and is succeeded by the civilian Ramon Gray San Martin.
1952	Batista seizes power again and presides over an oppressive and corrupt regime.
1953	Fidel Castro leads an unsuccessful revolt against the Batista regime.
1956	Castro lands in eastern Cuba from Mexico and takes to the Sierra Maestra mountains where, aided by Ernesto "Che" Guevara, he wages a guerrilla war.
1958	The U.S. withdraws military aid to Batista
	Triumph of the revolution
1959	Castro leads a 9,000-strong guerrilla army into Havana, forcing Batista to flee. Castro becomes prime minister, his brother, Raul, becomes his deputy and Guevara becomes third in command.
1960	All U.S. businesses in Cuba are nationalized without compensation.
1961	Washington breaks off all diplomatic relations with Havana. The U.S. sponsors an abortive invasion by Cuban exiles at the Bay of Pigs; Castro proclaims Cuba a communist state and begins to ally it with the USSR.
1962	Cuban missile crisis ignites when, fearing a U.S. invasion, Castro agrees to allow the USSR to deploy nuclear missiles on the island. The crisis was subsequently resolved when the USSR agreed to remove the missiles in return for the withdrawal of U.S. nuclear missiles from Turkey. Organization of American States (OAS) suspends Cuba over its "incompatible" adherence to Marxism-Leninism.
1965	Cuba's sole political party renamed the Cuban Communist Party.
1972	Cuba becomes a full member of the Soviet-based Council for Mutual Economic Assistance.
	Interventions in Africa
1976	Cuban Communist Party approves a new socialist constitution; Castro elected president.
1976-81	Cuba sends troops first to help Angola's left-wing MPLA withstand a joint onslaught by South Africa, Unita and the FNLA and, later, to help the Ethiopian regime defeat the Eritreans and Somalis.
1980	Around 125,000 Cubans, many of them released convicts, flee to the U.S..
1982	Cuba, together with other Latin American states, gives Argentina moral support in its dispute with Britain over the Falkland islands.
1988	Cuba agrees to withdraw its troops from Angola following an

DATE	EVENT
	agreement with South Africa.
	Surviving without the USSR
1991	Soviet military advisers leave Cuba following the collapse of the USSR.
1993	The U.S. tightens its embargo on Cuba, which introduces some market reforms in order to stem the deterioration of its economy. These include the legalization of the U.S. dollar, the transformation of many state farms into semi-autonomous cooperatives, and the legalization of limited individual private enterprise.
1994	Cuba signs an agreement with the U.S. according to which the U.S. agrees to admit 20,000 Cubans a year in return for Cuba halting the exodus of refugees.
1996	U.S. trade embargo made permanent in response to Cuba's shooting down of two U.S. aircraft operated by Miami-based Cuban exiles.
1998	Pope John Paul II visits Cuba.
1998	The U.S. eases restrictions on the sending of money to relatives by Cuban Americans.
1999	November - Cuban child Elian Gonzalez is picked up off the Florida coast after the boat in which his mother, stepfather and others had tried to escape to the U.S. capsized. A huge campaign by Miami-based Cuban exiles begins with the aim of preventing Elian from rejoining his father in Cuba and of making him stay with relatives in Miami.
2000	June - Elian allowed to rejoin his father in Cuba after prolonged court battles.
2000	October - U.S. House of Representatives approves the sale of food and medicines to Cuba.
2000	December - Russian President Vladimir Putin visits Cuba and signs accords aimed at boosting bilateral ties.
2001	October - Cuba angrily criticizes Russia's decision to shut down the Lourdes radio-electronic center on the island, saying President Putin took the decision as "a special gift" to U.S. President George W Bush ahead of a meeting between the two.
2001	November - U.S. exports food to Cuba for the first time in more than 40 years after a request from the Cuban government to help it cope with the aftermath of Hurricane Michelle.
	Spotlight on Guantanamo
2002	January - Prisoners taken during U.S.-led action in Afghanistan are flown into Guantanamo Bay for interrogation as al-Qaeda suspects.
2002	April - Diplomatic crisis after UN Human Rights Commission again criticizes Cuba's rights record. The resolution is sponsored by Uruguay and supported by many of Cuba's former allies including Mexico. Uruguay breaks off ties with Cuba after Castro says it is a U.S. lackey.
2002	May - U.S. Under Secretary of State John Bolton accuses Cuba of trying to develop biological weapons, adding the country to Washington's list of "axis of evil" countries.
2002	May - Former U.S. president Jimmy Carter makes a goodwill visit which includes a tour of scientific centers, in response to U.S. allegations about biological weapons. Carter is the first former or serving U.S. president to visit Cuba since the 1959 revolution.
2002	June - National Assembly amends the constitution to make socialist system of government permanent and untouchable. Castro called for the vote following criticisms from U.S. President George W Bush.

DATE	EVENT
	Dissidents jailed
2003	March-April - ''Black Spring'' crackdown on dissidents draws international condemnation. 75 people are jailed for terms of up to 28 years; three men who hijacked a ferry to try to reach the U.S. are executed.
2003	June - EU halts high-level official visits to Cuba in protest at the country's recent human rights record.
2004	April - UN Human Rights Commission censures Cuba over its rights record. Cuban foreign minister describes resolution - which passed by single vote - as "ridiculous."
2004	May - U.S. sanctions restrict U.S.-Cuba family visits and cash remittances from expatriates.
2004	October - President Castro announces ban on transactions in U.S. dollars, and imposes 10% tax on dollar-peso conversions.
2005	January - Havana says it is resuming diplomatic contacts with the EU, frozen in 2003 following a crackdown on dissidents.
2005	May - Around 200 dissidents hold a public meeting, said by organizers to be the first such gathering since the 1959 revolution.
2005	July - Hurricane Dennis causes widespread destruction and leaves 16 people dead.
2006	February - Propaganda war in Havana as President Castro unveils a monument which blocks the view of illuminated messages - some of them about human rights - displayed on the U.S. mission building.
	Castro hospitalized
2006	July - President Fidel Castro undergoes gastric surgery and temporarily hands over control of the government to his brother, Raul.
2006	December - Fidel Castro's failure to appear at a parade to mark the 50th anniversary of his return to Cuba from exile prompts renewed speculation about his future.
2007	April - A lawyer and a journalist are given lengthy jail terms after secret trials, which rights activists see as a sign of a crackdown on opposition activity.
2007	May - Castro fails to appear at Havana's annual May Day parade. Days later he says he has had several operations. Anger as the U.S. drops charges against veteran anti-Castro militant Luis Posada Carriles, who is a former CIA operative and Cuba's "Public Enemy No. 1" accused of downing a Cuban airliner.
2007	July - First time since 1959 that Revolution Day is celebrated without Castro present.
2007	December - Castro says in a letter read on Cuban TV that he does not intend to cling to power indefinitely.
	Fidel steps down
2008	February - Raul Castro takes over as president, days after Fidel announces his retirement.
2008	May - Bans on private ownership of mobile phones and computers lifted.
2008	June - Plans are announced to abandon salary equality. The move is seen as a radical departure from the orthodox Marxist economic principles observed since the 1959 revolution. EU lifts diplomatic sanctions imposed on Cuba in 2003 over crackdown on dissidents.
2008	July - In an effort to boost Cuba's lagging food production and reduce dependence on food imports, the government relaxes restrictions on the amount of land available to private farmers.

DATE	EVENT
2008	September - Hurricanes Gustav and Ike inflict worst storm damage in Cuba's recorded history, with 200,000 left homeless and their crops destroyed.
2008	October - State oil company says estimated 20bn barrels in offshore fields, being double previous estimates. European Union restores ties.
	Ties with Russia revitalised
2008	November - Russian President Dmitry Medvedev visits. Two countries conclude new trade and economic accords in sign of strengthening relations. Raul Castro pays reciprocal visit to Russia in January 2009. Chinese President Hu Jintao visits to sign trade and investment accords, including agreements to continue buying Cuban nickel and sugar.
2008	December - Russian warships visit Havana for first time since end of Cold War. Government says 2008 most difficult year for economy since collapse of Soviet Union. Growth nearly halved to 4.3%.
2009	March - Two leading figures from Fidel era, Cabinet Secretary Carlos Lage and Foreign Minister Felipe Perez Roque, resign after admitting "errors." First government reshuffle since resignation of Fidel Castro. U.S. Congress votes to lift Bush Administration restrictions on Cuban-Americans visiting Havana and sending back money.
2009	April - U.S. President Barack Obama says he wants a new beginning with Cuba.
	Crisis measures
2009	May - Government unveils austerity program to try to cut energy use and offset impact of global financial crisis.
2009	June - Organization of American States (OAS) votes to lift ban on Cuban membership imposed in 1962. Cuba welcomes decision, but says it has no plans to rejoin.
2009	July - Cuba signs agreement with Russia allowing oil exploration in Cuban waters of Gulf of Mexico.
2010	February - Political prisoner Orlando Zapata Tamayo dies after 85 days on hunger strike.
2010	May - Wives and mothers of political prisoners are allowed to hold demonstration after archbishop of Havana, Jaime Ortega, intervenes on their behalf.
2010	July - President Castro agrees to free 52 dissidents under a deal brokered by the Church and Spain. Several go into exile.
2010	September - Radical plans for massive government job cuts to revive the economy. Analysts see proposals as biggest private sector shift since the 1959 revolution.
2011	January - U.S. President Barack Obama relaxes restrictions on travel to Cuba. Havana says the measures don't go far enough.
2011	March - Last two political prisoners detained during 2003 crackdown are released.
	Reforms gather pace
2011	April - Communist Party Congress says it will look into possibility

DATE	EVENT
	of allowing Cuban citizens to travel abroad as tourists.
2011	August - National Assembly approves economic reforms aimed at encouraging private enterprise and reducing state bureaucracy.
2011	November - Cuba passes law allowing individuals to buy and sell private property for first time in 50 years.
2011	December - The authorities release 2,500 prisoners, including some convicted of political crimes, as part of an amnesty ahead of a papal visit.
2012	March - Pope Benedict visits, criticizing the U.S. trade embargo on Cuba and calling for greater rights on the island.
2012	April - Cuba marks Good Friday with a public holiday for the first time since recognition of religious holidays stopped in 1959.
2012	June - Cuba re-imposes customs duty on all food imports in effort to curb selling of food aid sent by Cubans abroad on the commercial market. Import duties had been liberalized in 2008 after series of hurricanes caused severe shortages.
2012	October - Spanish politician Angel Carromero is jailed for manslaughter over the death of high-profile Catholic dissident Oswaldo Paya. Mr Carromero was driving the car when, according to the authorities, it crashed into a tree. Mr Paya's family say the car was rammed off the road after he had received death threats. The government abolishes the requirement for citizens to buy expensive exit permits when seeking to travel abroad. Highly qualified professionals such as doctors. Engineers and scientists will still require permission to travel, in order to prevent a brain drain.
2012	November - President Raul Castro says the eastern province of Santiago was hard hit by Hurricane Sandy, with 11 people dead and more than 188,000 homes damaged. A United Nations report says Sandy destroyed almost 100,000 hectares of crops.

Table 4. A chronology of key events in Cuba's history (After "BBC News Latin America and Caribbean," 2012).

After gaining her independence from the United States in 1902, Cuba's modern history can best be described as politically and economically unstable. Much of Cuba's characterization is owed to political rivalry and corruption, besieged by revolutionary warfare. The country's lengthy history of facts and major events are chronicled in Table 4.

Cuba is today a communist state, having solidified a socialist style of government when Fidel Castro came to power in 1959. After the overthrow from a bloody guerilla

warfare conflict against the corrupt dictator, Fulgencio Batista, Castro's one party government has remained in power for over 50 years.

Not much is known about the inner dialogues of the Castro regime, but it is not uncommon for dissidents to be imprisoned or killed. Huge influx of Cubans have endangered their lives to flee Fidel Castro's iron grip and poor economic conditions, often dreading treacherous boat rides to Florida, only 90 miles away. As a result, the United States is home to over 1.5 million Cuban expatriates.

Though much of the country lives at or below the world's poverty level standard, the government continues to balance the need for loosening its socialist economic system against a desire for firm political control (CIA, 2013). Current president, and brother of Fidel Castro, Raul Castro (President since February 24, 2008), said such changes were needed to update the economic model to ensure the survival of socialism.

Key decisions by the Cuban government to improve and modernize the telecommunications networks across Cuba, has shown promise in the Cuban governments willingness to de-monopolize Cuba's telecom sector, and reduce the size of Cuban state expenditure, in favor of private participation in the economy (Lancaster, 2013).

> Greater investment beginning in 1994 and the establishment of a new Ministry of Information Technology and Communications in 2000 has resulted in improvements in the telecommunications system; national fiber-optic system under development; 95% of switches digitized by end of 2006; mobile-cellular telephone service is expensive and must be paid

> in convertible pesos, which effectively limits subscribership . . . Fiber-optic cable is laid, but not linked to U.S. networks (Atlantic Ocean region). (CIA, 2013)

"The genuine liberalisation of Cuba's telecom sector is expected to be hampered slowly over the coming years" (Lancaster, 2013). External factors to communications within the country have taken resources from within the government to support other industries necessary for the nation's ideological survival. "This has been keenly witnessed by the slow development of the submarine cable between Venezuela and Cuba, which in early 2013 was opened for traffic" (Lancaster, 2013).

Because items such as basic electricity and food have become scarce, billion dollar ventures to improve the island's telecommunications networks have been scaled back. Though the current government administration is moving in the direction of some privatization within the commercial and telecommunications industries, it seems more likely that the government will maintain a majority shares and control of the telecom industry.

Cuba's problem of advancing its telecom industry is further compounded by years of embargo against the island by the United States. The Castro government has repeatedly blamed the American embargo as a prime reason for the country's degrading infrastructures and poor telecom development. This is evidenced by the prevention of the submarine fiber-optic cable implementation that would have enabled Cuba to gain access to better international connectivity. Cuba has been relying primarily on satellites for international connectivity.

Despite recent events in 2012 by the U.S. government to ease some of the embargo restrictions, especially in the area of telecommunications, Cuba is yet to significantly grow the industry in a manner necessary to strengthen domestic and international commerce. U.S. President Obama's Press Secretary Robert Gibbs said the President had "directed that steps be taken to enable the freer flow of information among the Cuban people and between those in Cuba and the rest of the world, as well as to facilitate the delivery of humanitarian items directly to the Cuban people." The American government administration's underlying agenda is also the belief that information technology may aid in toppling and replacing the current communist government in Cuba for a democratic one.

Lifting the telecommunications embargo allows American telecom companies to do business with and in Cuba. These companies will be able to lay fiber optic cables and establish satellite facilities, among a host of other telecom related advancements, to connect the United States to Cuba and the broader international community.

In May 2008, the ban on privately owning a cell phone was lifted by the Cuban government, and ordinary Cuban citizens were allowed to own mobile cellular devices. Only government officials and people working for foreign companies or agencies were allowed to own or carry cell phones. Telecommunications monopoly Empresa de Telecomunicaciones de Cuba S.A., or ETECSA, allowed the public to sign prepaid cell phone contracts at a cost of 24 times the average Cuban worker's salary (U.S.$20), ensuring that cell phone service would be too expensive for most

Cubans. An average cell phone contract was about U.S.$120, or about a half-year's salary. The company said the high cost was necessary to improve the telecommunications system, despite the fact that the state owned company at the time, was partnered with mixed enterprises that operated with foreign capital from the Italian communications firm ITALCOM. In 2008 ETECSA stated it expected approximately 1.5 million Cubans to become cell phone subscribers over the next 5 years, and 2.4 million by 2015. As of 2013, ETECSA provides mobile service to just over one million mobile subscribers.

C. TELECOMMUNICATIONS INFRASTRUCTURE AND DEVELOPMENT

Cuba continues to struggle in the growth of its telecommunications facilities, but may see growth improve slowly over the next 5 to 10 years, if the Cuban government is able to take advantage of the American shift of easing embargo restrictions on their telecommunications sector and economy.

> Cuba still has the lowest mobile phone penetration in Latin America, one of the lowest levels of Internet penetration, and is among the five lowest in terms of fixed-line teledensity. Cuba's fixed-line services remain a monopoly in the hands of government-controlled Empresa de Telecomunicaciones de Cuba SA (Etecsa), while mobile services are provided exclusively by Cubacel, a subsidiary of Etecsa. There remains substantial state control over the right to own and use certain communications services, including the right to access the Internet. (Lancaster, 2013)

Though Cuba seems content with remaining a communist country with socialist ideals, the move toward what seems

to be a hybrid between state ownership, and private investors may prove key to Cuba's telecommunications growth.

To better understand Cuba's need to take on private investors to improve its telecom industry, an understanding of its pre-Fidel Castro telecommunications history, one of foreign control, is summarized from the article written by John Spicer Nichols and Alicia Torres, titled ***Telecommunications in Cuba*** (Nichols & Torres, 1998):

- 1851- Telegraph service established while still a colony of Spain. Connected 19 stations throughout the island. Exclusively used by Spanish government and railroad.
- 1867- Submarine cable laid between Florida and Havana, by International Ocean Telegraph Company. International Ocean Telegraph Company, acquired by Western Union in 1878.
- 1881- Cuban Telephone Company (CUTELCO) formed by Continental Telephone Company, a U.S.-based firm of Bell Telephone Company.
- 1915- 19,876 telephones in operation.
- 1904- U.S. Navy operating high-powered radio transmitter at Guantanamo Bay
- 1903- Boston-based United Fruit Company (UFCO) establishes an extensive domestic telephone and telegraph network along railroads.

  UFCO pioneers radio telegraphy, building the first wireless station in Latin America at Bocas del Toro, Panama.
- 1908- UFCO uses Fessenden's radio telephone technology for a relay station on western tip of Cuba. It was the first radio-telephone on the island, and a key component of the first commercial point-to-point radio network in the world.

- 1913- UFCO incorporates Tropical Radio Telegraph Company as a subsidiary. Network is expanded, becoming dominant in Central America and the Caribbean.
- U.S.-based Multinational Corporations dominates Cuban telecom systems, which grew in conjunction with the transportation system (primarily railroads).
- 1916- Cuban Telephone Company comes under financial control of International Telephone and Telegraph (ITT), an American owned company.
- 1928- Radio-telephone service to New York begins and to Madrid, Spain in 1929.
- 1949- Cuban American Telephone and Telegraph Company, owned and operated by ITT and AT&T establishes underwater telephone cable between Havana and Florida.
- 1957- Cable supplemented by experimental over-the-air tropospheric scatter transmission system, the first of its kind in the world. Originally designed to relay television signals across the Straits of Florida. Used only for voice communications.
- UFCO phases out Cuban radio operations, relying on less expensive common carriers for business communications. Company cites frequent damage from hurricanes and bureaucratic conflict with Cuban Ministry of Communications.
- 1954- Cuban television leases a DC-3 airplane fitted with a transmitter and two antennas to broadcast American baseball world series from Miami TV station. Cuban ground station distributed by microwave to five-station Cuban TV network. Following year, same method used by NBC to transmit the first live telecast from Cuba to U.S. (Nichols & Torres, 1998)

Pre-Fidel Castro Cuba not only shows that the Cuban telecom sector was dominated by foreign control, but demonstrated innovation throughout the communications

sector, and a robust infrastructure that was able to support commerce and business needs.

In 1959, when Fidel Castro came to power, he immediately restructured the "country's political and economic system, including the organization, financing and control of telecommunications" [Cuba at the Turning Point 1977, p 16–17] (Nichols & Torres, 1998).

On the eve of the revolution, U.S. investors controlled more than one-third of the country's public utilities, dominating domestic and international telecommunications and controlling 90 percent of electrical generating capacity" [Cuba at the Turning Point 1977, p 16–17] (Nichols & Torres, 1998).

Castro moved quickly after seizing power to put the Cuban Telephone Company under state control, and enacted powers to manage rates and the conduct of the company. He "revoked a rate increase authorized by the previous administration," and nationalized CUTELCO assets from ITT on August 6, 1962 worth U.S.$132.9 million (Nichols & Torres, 1998). Castro also nationalized other sections of industry within the island, to include Cuban electric worth U.S.$267.6 million.

Under the Castro state owned regime, the government allied itself with the former Soviet Union, relying heavily on Russia for economic aid, subsidies, and communications technology. In efforts to support its social agenda, Castro invested heavily in the telecommunications sector to bring the benefits of telephony to all Cubans, including the very poor. At the time, most Cubans in the countryside did not have access to telecommunications, and the government made

it a priority to build an infrastructure that would bring service to outlying communities.

> In 1958, 73 percent of installed telephone service was in Havana, where about 20 percent of the population resided. By 1982, only 56 percent of new service was being installed in the capital, the rest was in the provinces. During the 1958–82 period, the number of telephones nationwide nearly doubled from 170,000 (2.4 per hundred inhabitants) to 447,000 (4.6 per hundred). ["Cuban Parliamentary Debate..." 1984, p 2; Schroeder 1982, p 335; Statistical Abstract of Latin America 1960, p 28; Hunter 1991, p 398.] (Nichols & Torres 1998).... In 1993 Cuba had 5.4 phones per hundred inhabitants. This compared favorably with other poor countries in the region, such as Guatemala (1.1), Nicaragua (1.6), and Ecuador (3.0), and was not far behind wealthier neighbors such as Columbia (5.7), Mexico (7.3), and Venezuela (7.3).... Because of the elongated shape of the island, the national network was relatively easy to build. (Nichols & Torres, 1998)

Fidel's vision of providing adequate communications across the country grew significantly, but slowed immensely after the collapse of the Soviet Union. By the mid 80s, Cuba realized its aging telecom infrastructure would not be able to meet domestic demands, and was hampering its ability to communicate with the international commercial community. The Government relaxed its socialist ideology, amending its laws in 1995 to allow some parts of industry, including telecoms, to be owned and operated by joint or private investors.

The Cuban government was able to provided rudimentary telephone services to most Cubans at a cheap cost, because the country's telecom infrastructure was supported primarily by government capital and subsidy. Without Soviet

support, and American embargo restrictions, Cuba's telecom infrastructure rapidly deteriorated, with some equipment becoming antiquated by the early 90s. Customers experienced frequent interruptions in service, long delays in repairs and installations, network congestion, dialing difficulties, and scarcity of functioning public phones (Nichols & Torres, 1998).

> Analog technology was still being used for almost all of the domestic network. Of the 20,000 kilometers of phone lines, the vast majority was copper wire and pole mounted. Less than 1000 kilometers of fiber optics were in use, mostly connecting switches in the Havana area. In 1993 there were more than 500,000 access lines in Cuba, 40 percent of them in the Havana area, where approximately 20 percent of the population resided. The majority of central offices --about 56 percent --still used electro-mechanical equipment, 1940s technology from the United States. Another 43 percent used step-by-step technology, primarily 1970s East European equipment. Only about 1 percent used digital technology. The switches in a few isolated rural areas were still manually operated. (Nichols & Torres, 1998)

Indicator	1992	1993	1994
Population	10,785,800	10,855,700	10,989,400
Havana population	2,142,100	2,158,800	2,175,200
Homes	3,031,000	3,120,000	3,146,681
Gross Domestic Product	15,009.9	12,776.7	12,868.3
Main telephone lines	336,945	349,000	349,471
Main lines Havana	153,287	155,100	156,937
In Havana	45%	44%	45%
Installed capacity	447,340	455,708	459,168
Capacity used	75%	77%	76%
Lines to automated COs	99.0%	99.0%	99.2%
Lines to digital COs	1.0%	1.0%	1.0%
Residential lines	63.0%	63.5%	64.8%
Public telephones	10,003	7,508	5,814
International circuits	262	442	1,019
Telex subscribers	4,728	4,523	4,337
Fax machines	392	na	na
Cellular subscribers	234	600	1,152
Radio paging subscribers	632	734	859
Private leased lines	1,006	na	na
X.25, 28 subscribers	na	na	266
Faults/year/100 lines	14.9	25.1	29.2
Internt'l. calls (mil. min.)	7.5	7.5	11.2
Residential installation	$100.00	$100.00	$100.00
Residential installation	$100.00	$100.00	$100.00
Monthly residential charge	$6.25	$6.25	$6.25
Monthly commercial charge	$9.25	$9.25	$9.25
Charge per 3 min	none	none	none
Cellular installation	$120.00	$120.00	$120.00
Monthly cellular charge	$40.00	$40.00	$40.00
Cellular charge/3 min.	$0.40	$0.40	$0.40
Full-time employees	16,900	17,363	15,686
Total revenue, $ million	221.5	241.4	283.8
Annual investment, $million	26.7	na	na
TV sets	1,918,000	2,061,000	na
Satellite antennae	na	na	260

Table 5. Early 90s Cuban telecommunications indicators (From Press, 1996).

As the 20th century drew to a close, The Cuban government, lacking sufficient capital, entered into joint

venture projects with other countries and private partners to fix and modernize its aging infrastructure.

The results have been many joint-ventures, to include the deal with Mexico’s Grupo Domo’s in 1994 worth approximately U.S.$1.5 billion that has not materialized to its stated goal of overhauling and operating the country’s telecommunications infrastructure. However, other deals have accomplished significant progress toward Cuba’s modernization program. “Deals with Venezuela have resulted in the ALBA-1 submarine fibre-optic cable between Cuba and Venezuela” with a stated “potential to provide 640Gb/s bandwidth, but delays mean that years after the project started no traffic is yet carried” (Lancaster, 2013). Private ventures with Italian telecom company ITALCABLE, Italy’s intercontinental telephone company, resulted in progress to the country’s telecom development, and better landline and cellular service for the domestic and revitalized tourism market.

In 2008, ETECSA was 73% controlled by the government and 27% by Telecom Italia, holding monopolies in both fixed and mobile services. It offered GSM, TDMA, and AMPS services through subsidiary CUBACEL, though mobile rates at the time was prohibitive for a vast majority of Cubans (Anonymous, 2008). As of 2013, ETECSA is 100% owned by the Cuban government following its fallout with Telecom Italia over corruption allegations.

Figure 17. 1999 cellular telephony coverage (From Bookcamp & Soler, 2000).

In 2012,

> According to official figures, 1.2m Cubans, or about a tenth of the population, now have a mobile phone. But that is still a fraction of the levels achieved elsewhere in Latin America. ETECSA says it intends to reduce prices further, to reach its target of 2.4m subscribers by 2015. Last year it cut the cost of a line subscription by 80%.... Scores of foreign companies would like a slice of this market. But currently none are participating. In January 2011, the cash-strapped Cuban government surprised observers by arranging to buy out its remaining foreign partner in the business, Telecom Italia, for $706m. A few months later, several senior ETECSA executives were arrested as part of Mr. Castro's wide-ranging corruption investigations. It is not clear whether their arrest was directly connected with the deal. ("Cellular Telephones'" 2012)

D. POLITICAL AND SOCIAL CLIMATE TELECOMMUNICATIONS IMPACT

Cuba's ideology after the 1959 revolution has been one of a socialist service government to its people. While items like education, medical service, and many other social aid are provided free of cost at the government's expense, telecommunications is not free for most Cubans,

and is out of reach financially for a majority of the population. Overall economic conditions are poor at best across the island, and citizens rely on food rations for basic survival, despite significant aid via government services.

Cuba’s social class system prior to 1959 is best described as sharp class divisions between the rich, middle class and poor. The poor, primarily peasant descendants of former African slaves who worked the agricultural plantations, were severely underpaid, and in many cases, struggled to feed their families based on insufficient wages. The wealthy class comprised mainly of the plantation owners, especially those who owned sugar-producing plantations, and were among the elite few on the island. The middle class, comprised the professional work force within the country, and was a substantial part of the economy.

After Fidel Castro’s revolution, the government was reformed under a communist style leadership, and the removal of differentiating between social classes within the society faded. Since social programs like housing, medicine, and education were free or affordable, coupled with employment availability for all Cubans, the class structure became one of equality, and eroded the monetary hierarchy prevalent between 1902 and 1958.

Most Cubans from the middle and upper classes fled Cuba in significant numbers to show a lack of appreciation for their socialist government agenda, precipitating the government’s goal to socially level the society. The government’s ability to dictate wages and prices,

supplemented with rationed commodities further facilitated the income gap between the rich and poor.

Fidel Castro's goal of societal reform was successful, and he narrowed the wage gap significantly among the population. Doctors, University Professors, and other industry professionals earned approximately 700 pesos per month, while those in the unskilled workforce earned approximately 100 pesos per month.

> There are jobs for everyone; unemployment stands at less than 2%. But wages are so low that little gets done. Cuba's productivity per person ranks among the lowest 3% in the world. A popular refrain heard throughout this city: "Fidel pretends to pay us and we pretend to work." The only jobs that matter are those where you can pilfer goods from the workplace or which give you access to tourist money. Tour guides and artists who sell to visitors command enviable incomes. Butchers earn more than doctors. (Kaldec, 2013)

The economic and wage gap can be compared against the pre-Castro era, when wealthy plantation owners made millions of dollars, while those who performed the backbreaking plantation labor earned approximately 150 pesos per month. Females of African descendants were the most disadvantaged, primarily working as domestic maids, earning approximately 75 pesos per month.

As a result, because telecommunications is not one of the social programs provided for free, most Cubans are unable to afford telephony within the country (Table 5). Cuba has fewer telephone lines as a percentage of population than any large Caribbean nation with the exception of Haiti, and is closer to the low-income nations

of the world rather than the lower-middle income bracket to which it belongs (Tables 6 and 7) (Press, 1996).

Nation	GDP($Bil.)	Mainlines (1000)	Mainlines/100 Citizens
Cuba	14.8	433.8	3.89
Low-Income	1,157	64,032	1.98
Lower Middle	1,653	103,028	9.09
Upper Middle	2,258	69,238	14.51
High	20,800	455,203	53.16
World	25,868	692,101	12.14

Table 6. 2000 Income category information (From Bookcamp & Soler, 2000).

	GDP($Bil.)	Population (Millions)	Mainlines	Teledensity (mainlines/100 cap.)
Cuba	14.8	11.16	433.8	3.89
Dominican Republic	15.8	8.36	763.9	9.28
Haiti	3.5	8.09	70	0.87
Jamaica	6.9	2.56	509.6	19.91
Puerto Rico	34.8	3.89	1295	33.29
Trinidad & Tobago	6.1	1.29	278.9	21.58
United States	8,759.9	276.22	18,8331	68.18
The Americas	11,396.6	818.11	275,779	33.71

Table 7. GDP within Caribbean region (From Bookcamp & Soler, 2000).

According to the CIA, illicit emigration is a continuing problem; Cubans attempt to depart the island and enter the U.S. using homemade rafts, alien smugglers, direct flights, or falsified visas; Cubans also use non-maritime routes to enter the U.S. including direct flights to Miami and over-land via the southwest border (CIA, 2013). As a result of Cuba’s large expatriate community of approximately 1.5 million residents in the United States, a large percent of calls to Cuba originate from the U.S. via various America carriers (Table 8). The easing of embargo restrictions over the past decade by the United States has shown promise for American carriers to improve and build new connectivity to better provide service to Cuba from

America. FCC regulations and the Cuban government's position on tariffs have slowed some of the progresses made after the ease of restrictions.

Carrier	Link	Authorized by FCC	In Use
AT&T	Undersea Cable	143	114
AT&T P.R.	Intelsat	150	150
MCI	Intelsat	150	120
Sprint	Intelsat	120	30
Worldcom	Intersputnik Intelsat Columbia	390	90
Totals:		953	504

Table 8. Voice channels from U.S. to Cuba in 2000 (From Bookcamp & Soler, 2000).

> The average Cuban's standard of living remains at a lower level than before the downturn of the 1990s, which was caused by the loss of Soviet aid and domestic inefficiencies. Since late 2000, Venezuela has been providing oil on preferential terms, and it currently supplies over 100,000 barrels per day of petroleum products. Cuba has been paying for the oil, in part, with the services of Cuban personnel in Venezuela including some 30,000 medical professionals. (CIA, 2013)

E. GOVERNMENT AND TELECOMMUNICATIONS RELATIONSHIP

Cuba's early telecommunications infrastructure was primarily built through commercial interest by foreign investors. The efforts made were significant to Cuba's social and economic development prior to the 1959 Fidel Castro led revolution. Like most commercial interests and industry, the telecommunications sector was placed under state ownership, to enable better service to its citizens, to include those who lived in rural areas.

Unfortunately, over Cuba’s post 1959 revolution era, government capital has not been able to support the state owned telecommunications infrastructure. The government has made efforts to take on foreign investors, but to date, the expectation levels of service has fallen short of the goals to bring the industry on par with other countries in the region.

To date, Cuba’s state monopoly owned ETECSA is the sole landline telecoms provider, and mobile cellular provider through its subsidiary CUBACEL.

Despite the legalization of mobile phones in 2008, subscriber’s number approximately 1.1 million (Figure 18), while landline usage has stagnated at approximately 1.2 million users (Figure 19). There are approximately 15.5 lines for every 100 inhabitants, which were the lowest in the region, according to the United Nations International Telecommunications Union (Frank, 2010).

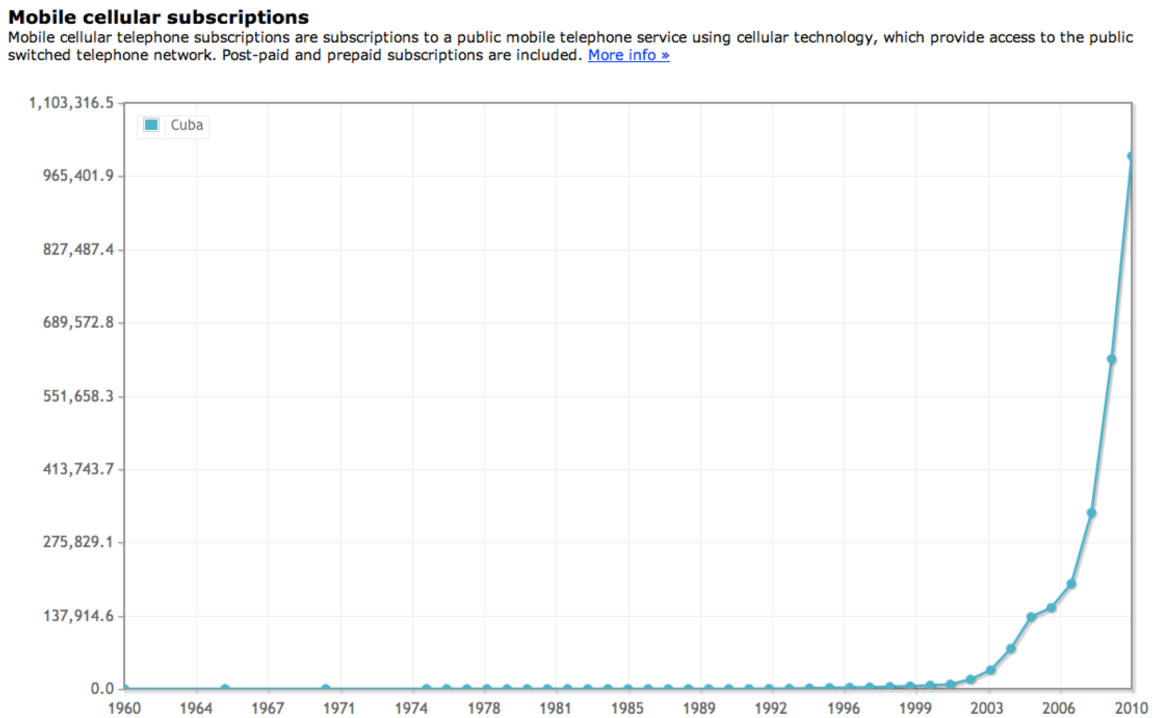

Figure 18. Cuba's Mobile Cellular Subscription in use (From "Mobile Cellular Subscriptions," 2011).

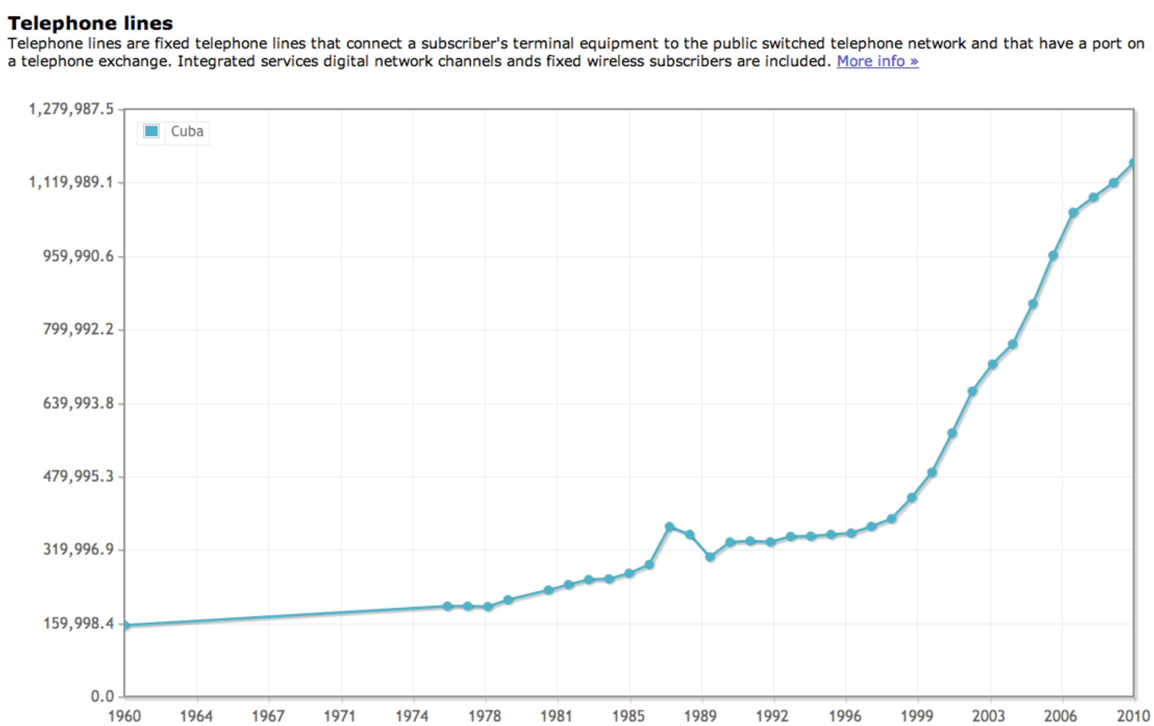

Figure 19. Cuba's telecommunications landlines in use (From "Telephone Lines," 2011).

Though the current infrastructure is able to support international demands for data traffic, the international links and capacity are severely underutilized, because the government has placed strict restrictions on Internet usage. There are just over 1.6 million Internet users (Figure 20), though broadband is extremely limited or non-existent for most Cubans. Most computers are located in government offices, health and education facilities, where priority is given to social use of telecoms technology (Frank, 2010). But Cubans cannot legally buy a computer or subscribe to an ISP without having a government permit ("Telecommunications Reports for Cuba," 2012).

> Private citizens are prohibited from buying computers or accessing the Internet without special authorization; foreigners may access the Internet in large hotels but are subject to firewalls; some Cubans buy illegal passwords on the black market or take advantage of public outlets to access limited e-mail and the government-controlled "intranet" (2009). (CIA, 2013)

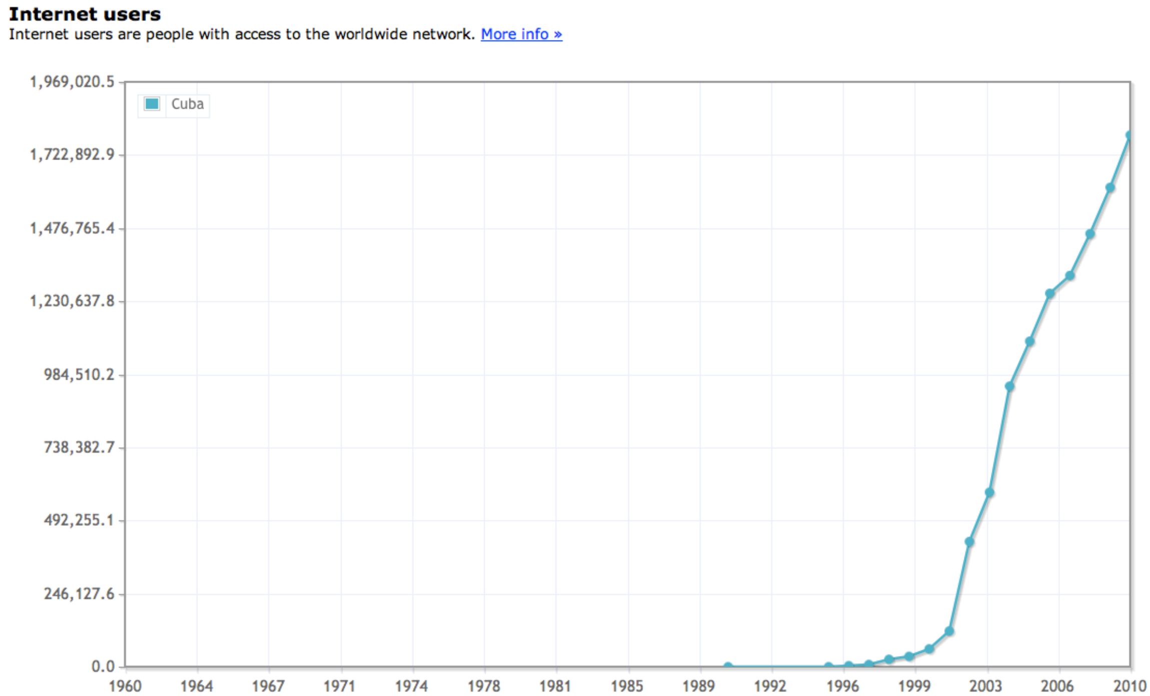

Figure 20. Internet users in Cuba (From "Internet Users," 2011)

Priority of the telecommunications infrastructure for both telephony and data are given to international vice domestic usage, creating relatively poor service for domestic users.

> Although a 3G system for mobile Internet is in place across the island, Cuban cell phones are prevented from accessing it (only those roaming from foreign networks can do so). And according to one foreign executive, who was familiar with the project to install that network ten years ago, the government took its habitual precautions. When the core switch for the network was purchased from Ericsson, the Cubans made absolutely sure they had every imaginable snooping feature available, he says. ("Cellular Telephones," 2012)

The government's ability to take advantage of the loosening policy restrictions by the U.S. to better serve

its international and domestic telecoms capacity is further complicated by American F.C.C policy regulations, and the Cuban government's inability to compromise on long standing disagreements on tariffs and carrier provider collections. A detailed review of the barriers caused from policies and regulations between the two countries is discussed in Chapter VI.

F. CHAPTER SUMMARY

Cuba's early history under Spanish colonialism provided an avenue for economic vibrancy in agricultural plantations, especially those developing sugar cane, tobacco, and coffee. The country's introduction to early telecommunications was used primarily by plantation owners and the Spanish government.

After Spanish rule ended in 1858, American investors continued as the dominant entity for economic stability to the island, taking advantage of favorable business conditions. With many competing American business interests on the island, telecommunications became a method for companies to maintain an edge in the agricultural markets. These conditions enabled Cuba to become a telecommunications innovator within the region, eventually building one of the most robust telecommunications network within the Caribbean and Latin American region.

In 1959, Fidel Castro led a communist and socialist revolution, overthrowing the incumbent dictator government of Fulgencio Batista. Under Castro, businesses were nationalized under government rule, to include the Cuban Telephone Company and the broader telecommunications industry.

Though early rule under Castro saw the telecommunications infrastructure improve from primarily densely populated areas to include rural areas, so all Cubans could have access to telecommunications, loss of Soviet financial and economic support in the late 80s resulted in much of Cuba’s telecommunications infrastructure becoming outdated and in some cases antiquated over the subsequent years.

In its attempts to revitalize its outdated and often unusable telecommunications infrastructure, the government has stated its intentions to privatize its telecommunications industry to provide a necessary catalyst for its sagging economy. Though the American government has eased restrictions on its long-standing embargo of Cuba, the country is unable to grow its infrastructure to keep pace with other countries in the region. Cuba has one of the lowest teledensity rates in the region (10 per 100 persons).

The country’s only operator of telecommunications to the island is provided by state owned monopoly company, Empresa de Telecommunicaciones de Cuba S.A., or ETECSA. The company partnered with Italian telecommunications company Telecom Italia, but dissolved its partnership in 2011 over allegations of corruption by government minister and members of Telecom Italia.

Cuba’s legalization of cell phones for personal use in 2008 has resulted in approximately 1.2 million Cubans becoming cell phone subscribers (one tenth of the population),... a very small number considering the nation has over 11 million residents.

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IV. TELECOMMUNICATIONS REGULATORY POLICY EFFECTS

The telecommunications regulatory policies of Jamaica and Cuba are vastly different based on government ideology. While Jamaica promotes a democratic government with liberal market policies, Cuba's socialist government primarily views state ownership as an important criterion to provision and governing of the telecom infrastructure. Though Cuba has realized that the cost of maintaining and modernizing its telecom industry is much too expensive for its government, the country aims to take on private partners in an effort to bring its aging infrastructure into the 21st century. This initiative took a setback after the dissolution of the partnership between ETECSA and Telecom Italia over corruption allegations in 2011. ETECSA has returned to being 100% state owned by the Cuban government.

While Jamaica is viewed to be on par with most developing countries in the region, Cuba continues to make efforts to bolster every facet of its telecommunications infrastructure to revitalize its sagging economy.

Both countries handle the use of information technology as a tool to grow economic trade within the international community, very differently; the need to control information use and dissemination domestically is vastly different for the two countries. At the heart of this issue are the differing government ideologies. While Jamaica aims to promote free speech and access to the communications and information world for all its citizens, Cuba restricts such information due to fears of information

revolutions like those seen during the Arab Spring uprising in Tunisia and Egypt in 2011 (see Chapter I). Such revolutions have led to totalitarian governments being toppled in favor of democratically elected ones. Communist governments, like that of Cuba's, traditionally do not allow unlimited/free access to information it deems detrimental to its governance.

A. MARKET INFLUENCE ON TELECOMMUNICATIONS

1. Jamaica

Market highlights (Lancaster, 2013):

1. After securing a licence in the 2.5GHz spectrum, in 2010 Digicel launched its much-anticipated nationwide WiMAX network for residential customers. Although subscriber data has yet to be reported, Digicel has expressed positive views about initial subscriber uptake.
2. Shortly after Digicel's WiMAX launch, in late 2010 Claro announced that it would be deploying an LTE wireless platform, allegedly capable of speeds of up to 170Mb/s. The deployment is part of Claro's U.S.$300 million capital investment in the build-out of its entire wireless network.
3. In 2010 LIME announced a U.S.$600 million investment program in new services and upgrades across the region, of which an estimated U.S.$150 million would be in Jamaica alone. The investment will consolidate Jamaica as the hub of LIME's regional operations, handling finance, procurement and human resource operations for all of its markets.
4. In early 2011 Cable & Wireless Communications completed laying its U.S.$35 million East-West cable between Jamaica, the British Virgin Islands and the Dominican Republic. The submarine cable is expected to significantly augment capacity for data and telephony services.
5. The mobile market leader remains Digicel Jamaica, which has incorporated the network and most customers of América Móvil's Claro.

6. LIME’s island-wide subscriber television wireless licences may bring valuable competition to a market currently dominated by Columbus Communications Networks’ FLOW.
7. Cable broadband has made strong inroads into the broadband sector, steadily gaining market share. The growth is largely due to the relatively high penetration of CATV in Jamaica together with significant investment by FLOW and a number of new licence applications and licence extension applications offered by the BCJ. (Lancaster, 2013)

2. Cuba

Market highlights (Lancaster, 2013):

1. Since 2009 U.S. telcos have been able to establish themselves in Cuba though reticence on the part of Cuban authorities has made co-operation difficult.
2. The incumbent ETECSA, now merged with its mobile subsidiary CUBACEL, has worked with the government to improve teledensity in poorly served areas of the capital, though services remain limited.
3. The ALBA-1 submarine fibre-optic cable between Cuba and Venezuela has the potential to provide 640Gb/s bandwidth but delays mean that years after the project started no traffic is yet carried.
4. Mobile subscriber growth of around 30% in 2011 has largely been the result the government’s 2008 decision to allow private ownership of cell phones, as also a response to the poor fixed-line infrastructure. Mobile penetration nevertheless remains among the lowest in Latin America.
5. Public Internet access is also limited, with most dial-up the only realistic access for citizens. The high cost of access, as also the limitations of dial-up connectivity, mean that the potential of the WWW, as recognised in most other countries, remains impossible in Cuba.
6. ETECSA reduced the cost of domestic phone calls at the end of 2012 and introduced a calling-party-pays system. (Lancaster, 2013)

B. POLICY BARRIERS

1. Jamaica

Jamaica’s Office of Utilities and Regulation provides oversight of communications technology, and is responsible to the government Ministry of Science, Technology, Energy and Mining. The current policies in place have friendly relations with the broader information technology world community (including the U.S. F.C.C), and present few barriers to telecommunications growth on the island. Issues of dispute between government and private companies are generally resolved through arbitration or the court system. The United Kingdom’s Privy Council in England, which acts as Jamaica’s highest court, is the last appellate court during disputes that are not able to be resolved at the local level.

A superb example of the government not overstepping its boundaries to hinder a free and competitive telecommunications market, but maintaining its position to provide regulatory and policy oversight, happened in 2010, when the Office of Utilities and Regulation attempted to apply regulatory control of domestic mobile termination rates between local operators. Digicel argued that the OUR did not have the pertinent authority to establish control of termination rates on the island. Digicel lost its legal battles at both the Jamaican Court of Appeals and the U.K. Privy Council. The ruling agreed that the law required that each operator be obliged to offer interconnection with each other telecoms networks, but that the lack of price regulation meant that an operator could de-facto block interconnection by imposing excessive pricing (Golding,

2011). Digicel’s competitors at the time of the ruling, LIME and CLARO lauded the Privy Council’s decision.

While OUR’s charter states, “The OUR shall regulate telecommunications in accordance with the ACT (ACT2000) and for the purpose of the Office will inter-alia (1) promote the interest of customers, while having due regard for the interest of carriers and service providers and (2) promote competition among carriers and service providers” (Golding, 2011), Jamaica established the Fair Trading Commission (FTC) as an administrative body responsible for enforcing the country’s Fair Competition Act of 1993. The FTC is also chartered with the responsibility, to report abuse by companies holding dominant positions in the economy or market. The FTC charter does not address companies holding monopoly positions in the economy or market. The FTC has the authority to issues fines on companies of up to J$5 million, or approximately U.S.$60 thousand.

Though the potential exist for the Jamaican government to be heavy handed in regulatory decisions, the appellate system established ensures businesses and investors will have an avenue for disputes. This approach is attractive to investors in the telecommunications industry, and has enabled a free market with healthy competition.

2. Cuba

Though Cuba has aspirations of improving its telecommunication infrastructure “through liberalization measures designed to reduce the role of the state and increase the private sector” (Anonymous, 2008), current government policies and state ownership, coupled with disputes between itself and the United States, severely

hamper Cuba's ability to attract foreign investors and much needed capital to help modernize the country's technology infrastructure.

Despite efforts in 2009 by the current American government administration to relax some embargo rules pertaining to telecommunications in Cuba, differences between U.S. Federal Communications Commission (FCC) pricing regulations and the Cuban government pricing rules effectively preclude U.S. operators from operating in Cuba (Anonymous, 2008).

A brief chronological history from the paper ***"Cuban Telecommunications Infrastructure and Investment"*** by Larry Press, on U.S.-Cuba oversight by the FCC, is as follows:
U.S.-Cuban Telecommunication Timeline:

- April, 1921: Long distance service established through a submarine cable between Florida and Cuba.
- July, 1950: AT&T replaces original cable.
- August, 1957: Service enhanced by addition of over-the-horizon radio between Cuba and Florida.
- October, 1966: AT&T is exempted from the 1962 trade embargo for humanitarian reasons.
- April, 1987: Cable system fails, and service is diverted to radio relay towers.
- April, 1989: AT&T replaces failed cable system, but differences between Cuba and U.S. terms of agreement keep it inactive.
- August, 1992: Hurricane Andrew incapacitates radio system in Florida City, and calls are routed through Italy.
- July, 1992: The Cuban Democracy Act authorizes telecommunication facilities "in such quantity and of such quality as may be necessary to

provide efficient and adequate telecommunications services between the United States and Cuba.”

- July, 1993: Cuban government cuts calls from the U.S. from approximately 20,000 minutes/day to 20,000 minutes/month.
- July 22, 1993: U.S. State Department issues guidelines for long-distance companies doing business with Cuba.
- July 27, 1993: The FCC issues notice of acceptance of applications for Cuban service. (Report No. I-6831).
- March 9, 1994: WilTel agrees to construct an undersea fiber cable.
- October 4, 1994: The FCC authorizes five carriers to provide switched voice and leased private-line services to Cuba: WilTel, MCI, LDDS, Sprint, and IDB. (WilTel, IDB, and LDDS subsequently merged to form WorldCom), and AT&T service is improved. (Report No. CC-588, Memorandum Opinion, Order, Authorization & Certification DA 94–1098)
- December 7, 1994: The FCC authorizes the resale of switched services to Cuba. (Report No. I-7079)
- March 10, 1995: A State Department letter states they have no objection to Sprint offering direct packet data service via Canada or to GTE’s Dominican Republic subsidiary CODETEL acting as a transit point for U.S.-Cuban telecommunications traffic.
- June 19, 1995: An FCC letter authorizes AT&T Puerto Rico to temporarily operate 150 voice grade circuits pending approval of their permanent request. (Press, 1996)

Though the U.S. president issued directives to implement changes in current regulations and procedures that restrict telecommunications services to and from Cuba, and to increase the flow of communications between the United States and the island nation (Braverman & Dodge,

2009), the President and his administration overlooked the FCC’s regulatory charter to authorize service between the two nations.

> The FCC enforces regulations and guidelines that, currently constituted, interpose onerous application, operating and compliance requirements on U.S. carriers that seek to serve Cuba. Until the FCC is instructed to change its enforcement procedures-instructions that the FCC thus far has not received-staff of the FCC has indicated that it intends to apply more burdensome regulatory guidelines that have been in force since the passage of the Cuban Democracy Act of 1992 (CDA). (Braverman & Dodge, 2009)

Excerpts of a memorandum from the United States Department of State, supporting the FCC’s regulatory position, signed by Ambassador Phillip L. Verveer dated October 24, 2012, to the FCC, pertaining to the FCC’s jurisdiction to protect U.S. telecommunications, (pertains to FCC IB Docket No. 11–80) reads as follows:

> The Department appreciates the FCC’s recognition that special consideration and treatment of the U.S.-Cuba route is warranted as the FCC addresses the issue of the ISP reform under IB Docket No. 11–80. The Department recommends that the FCC continue to apply at least some aspects of the ISP to ensure that Cuba does not disfavor or discriminate against some U.S. carriers with regard to the accounting rate for terminating traffic on the U.S.-Cuba route ... the department supports the current policy of continuing the application of the benchmark rate to the U.S.-Cuba route as well as waiver process available.

The FCC requires that domestic carriers desiring to establish international service to foreign countries must receive FCC “214 authorization,” pursuant to Section 214 of Title 47 of the U.S. Code, which grants the FCC

jurisdiction over international communications service (Braverman & Dodge, 2009). There are however additional restrictions in the U.S. Code, which severely restricts or preclude, the ability of U.S. carriers to do business with Cuba. Further limitations prevent carriers from upgrading infrastructure already in place to provide the gateway link between the U.S. and Cuba. These additional FCC restrictions are as follows, and are summarized from, "***FCC awaiting Instruction on Easing of Restrictions on Telecom Services to Cuba***" by Burt Braverman and John Dodge (Braverman & Dodge, 2009):

1. Proposals must have the potential to be operational within one year;
1. Proposals are limited to equipment and services necessary to deliver signals to an international gateway in Cuba;
2. Settlements with ETECSA (the Cuban-owned telephone monopoly) are limited to a 50/50 split of a U.S.$1.20 accounting rate, and ETECSA must cover half the cost of construction and maintenance, or lease, of transmission facilities;
3. Proposals using existing facilities face potentially streamlined approval while proposals involving new transmission facilities are reviewed case-by-case;
4. Carriers must file twice-yearly circuit reports;
5. The Treasury Department monitors ETECSA's earnings, and carrier deals with ETECSA are reviewed case-by-case;
6. Cuba's blocked accounts containing prior settlements remain frozen; and
7. Carriers are required to obtain licenses from the Treasury Department's Office of Foreign Assets Control, and possibly also from the Commerce Department's Bureau of Industry and Security and/or the Department of State, under regulations that restrict financial transactions with, and sales of goods and services to, Cuba and other nations subject to trading-with-the-enemy restrictions. (Braverman & Dodge, 2009)

The Pricing dispute between the U.S. and Cuba has cost the Cuban government the opportunity at infrastructure development for the country's outdated and in some cases, antiquated telecommunications infrastructure. At the heart of this dispute is the Cuban government's unrealistic pricing policy it desires to levy on U.S. carriers.

To date, little has changed since the U.S. eased restrictions since the Cuban government was still resisting the U.S. policy steps, while the FCC was not prepared to amend its rules to allow U.S. operators pay 84 cents per call required by the Cuban government (Anonymous, 2008).

C. STRENGTHS AND WEAKNESSES OF JAMAICA AND CUBA

1. Strength, Weakness, Opportunity, and Threats (SWOT) Analysis

Analyzing the features of both countries IT infrastructure, a broad view of the comparative issues emerge. A summary of advantages and weaknesses show the relative potential as an IT competitor in the global economy.

a. Jamaica

(1) *Strengths:*
-The Jamaican population has become technically savvy, and has kept pace with most developed countries.
-Mobile cellular service is affordable for a plurality of the population.
-The Jamaican government has very liberal polices for telecommunications investors, making the country attractive.
-Robust IT communications infrastructure.

-Good relations with international community

(2) ***Weakness:***

-TV cable and Landline service is generally affordable for lower middle to upper class. Not affordable to the poor.
-Theft of mobile cellular devices caused by high unemployment and crime rate; sometimes leads to murder.

(3) ***Opportunities:***

-New investors willing to take advantage of lucrative telecommunications market, and generous government policies and regulations.
-Education improvement in schools, government and commercial industries.
-Market penetration of PC's still growing.
-Education opportunities in the information technology sector.

(4) ***Threats:***

-Digicel's significant market shares over mobile cellular competitors.
-Increasing oil prices on the world market could affect electricity needed for telecommunication equipment.

b. Cuba

(1) ***Strengths*** (Bookcamp & Soler, 2000):

-The Cuban population is one of the most educated among developing nations.
-Labor costs are lower than for most software developing countries.
-Cuba is already recognized as a leader in biotechnology.
-The Cuban government is fostering FDI.

(2) ***Weakness*** (Bookcamp & Soler, 2000):

-Inadequate domestic IT/telecommunications infrastructure.
-Price and availability of Internet technology and services.
-Government control of all Cuban marketplaces, e-commerce, and trade.
-Lack of IT growth in the domestic marketplace.

-Training/IT infrastructure based on obsolete technology.

(3) ***Opportunities*** (Bookcamp, 2000):

-Poor IT infrastructure provides growth opportunities for wireless technologies.

-Market penetration of PCs in the home and businesses is very low.

-Internet access is provided by one provider.

(4) ***Threats*** (Bookcamp, 2000):

-High piracy rates/lack of value ascribed to software development.

-Low financial support for the IT industry.

-Cuba's inability to attract foreign aid and FDI.

-International political sanctions.

2. Regional Growth and Influence

Cuba's monopoly domination of its communications industry and commercial economy has seen the communist state lagging behind all other countries in the region on its telecommunications growth. Cuba still has the lowest mobile phone and Internet penetration rates in the region, and is also among the lowest for fixed-line teledensity. While the national statistics office reported that there were 1.6 million Internet users, or 14.2 per 100 residents, in most cases this was to government computers (Frank, 2010).

Jamaica on the other hand has seen rapid growth and expansion in the telecom industry, and continues to be a regional leader in the telcom sector. In Jamaica, Internet access was 53.27 per 100 inhabitants in 2008.

3. Investors

After Jamaica de-monopolized its telecom sector, the government's ability to provide a confident and competitive market for the country has attracted investors willing to spend large sums of money to build networks often seen in most developed countries. To date, new investors continue to flock to Jamaica in an effort to establish foothold in the lucrative and continually growing Jamaican telecoms market.

Cuba on the other hand, continues to struggle in its ability to take on foreign investors. Government policies and corruption continues to detract investors once willing to do business in Cuba. Venezuela and the Soviet Union have emerged as possible investors who may be able to revitalize the aging Cuban telecoms infrastructure.

> In March 2010 Cuba and Russian signed a telecommunications pact in which the two countries agreed to jointly develop information technology. As part of the pact, delegates from both countries would also evaluate other possibilities for cooperation in the areas of radio spectrum, telecommunications and professional training. (Anonymous, 2010)

French based, global telecommunications equipment company, Alcatel-Lucent SA, laid 1,000-miles of underwater fiber-optic cable between Venezuela and the city of Siboney on Cuba's southeastern coast for an estimated UD$70 million. The ALBA-1 submarine fiber-optic cable between Cuba and Venezuela has the potential to provide 640Gb/s bandwidth but delays mean that years after the project started no traffic is yet carried (Lancaster, 2013).

Cuba's telecommunications market has the potential to become one of the region's largest telecom markets with a population exceeding 11 million people. U.S.-owned Caribbean territory, Puerto Rico, leads the region with a U.S.$1.6 billion market for 3.7 million residents, according to Pyramid Research located in the Cambridge, Massachusetts.

4. Liberalization vs. State Owned

a. Jamaica

Jamaica's decision to liberalize its telecom market from one that was previously state owned has resulted in explosive growth, not only for its telecommunications market, but also for other supported commercial interests throughout the country.

The de-monopolization and subsequent privatization of the Jamaican telecoms market resulted in keen completion between foreign investors vying for foothold in the lucrative Jamaican market. The country and its people have benefitted greatly from market competition. A plurality of the population now has use of access to all facets of communications in the country, to include mobile cellular, cable TV, and Internet access. Prices are relatively low; another result of market competition in a free capitalist society.

While much is lauded over the Jamaican government's efforts and handling of the telecoms market, the country faces the very dangerous situation of again becoming a monopoly telecommunications market for its cellular and cable providers. Companies within the industry

have grown their market shares by purchasing competing and smaller companies. Mobile Cellular provider Digicel, and Cable TV/ISP/Digital landline provider FLOW, has recently become the dominant telecommunication companies on the island, having acquired most of their industry competitors. While prices are at affordable rates for the country's majority, the inherent risk of total monopolization exists without adequate government oversight for the cellular mobile and Cable TV/ISP/Digital landline market.

Jamaica does have in place an Office of Utilities and Regulation, in addition to a government Minister responsible for communications and technology, to interpret and enforce government policies to telecommunications providers.

Regulatory oversight, and policies to maintain competition in the Jamaican market should be a priority of the Jamaican government. Deals between companies, especially like the unexpected one between Digicel and Claro (Chapter II, Section E, Subsection 4), threatens to create a new and possibly dangerous monopoly situation in Jamaica. Government regulatory bodies must keep within sight, the issues of telecoms companies dealing in mergers and acquisition, network effects, sustaining competitive advantage, international competition and technology standards.

b. Cuba

Cuba's inability to privatize or liberalize its telecoms industry, from one that is state owned, has left the government with the arduous responsibility of providing service in all facets of communications, to include mobile

cellular, telephone landline service, satellite TV, and Internet data service for the entire island.

Cuba continues to promote privatization of its telecoms industry, but does not seem keen on liberalization of the sector. While the government has recognized its inability to sustain or grow its infrastructure due to burdening cost to the government, its ideology seems to prevent the government from moving forward, as evidenced in its 2011 decision to take over state ownership and total control of its monopoly owned ETECSA, buying out its remaining foreign partner in business, Telecom Italia, for U.S.$706 million ("Cellular Telephones," 2012).

America continues to push Cuba in a direction it believes will enable a stronger and more viable telecommunications market, with the underlying agenda of promoting the free flow of information like that seen in democratic societies.

President George Bush is quoted saying, "Now that the Cuban people can be trusted with mobile phones, they should be trusted to speak freely in public,... if Raul's serious about his so-called reforms, he will allow these phones to reach the Cuban people."

D. RECOMMENDATIONS

1. Jamaica

Jamaica's ability to manage its liberal telecommunications market has resulted in positive growth for the country's infrastructure. Despite these advances, the country is keen to see its mobile cellular sector probably become dominated by Digicel in its near future. As

such, government policies and regulations to manage a dominant monopoly must be addressed to ensure fair business practices are maintained for the protection of both the telecom business and its users.

Such policies could include price caps to ensure runaway prices are not seen in the market. Additionally, these policies should ensure telecom businesses are not stifled due to equipment maintenance costs recovery in the prices charged to consumers. Therefore, dialog will be necessary between government and telecom business to ensure fair-trading for all.

The Government of Jamaica should also improve its attractiveness for other telecommunications investors willing to invest in the market. Techniques could include tax breaks for new companies, without disadvantaging current operating companies. Such breaks can be incentive laden to ensure fair practices to new and currently operating companies. While analysts believe Jamaica still has growth opportunities within its telecom sector, of concern for new investors is how much the market can grow from its present position, and whether customers of current operators can be lured away by innovative technologies.

2. Cuba

While Cuba’s telecommunications industry continues to struggle under its own ideology, recent developments have made Cuba an attractive perspective for telecommunications investors willing to assume risk in a market with a fragile government. Recent easing of the American embargo against Cuba, especially in the telecommunications sector, coupled with Cuba’s desire to privatize its telecom industry, makes

Cuba the most valuable telecom entity within the region with over 11 million inhabitants.

The Cuban government should privatize its telecom market if it hopes to see growth within the sector. Immediate investment from private companies for the telecom industry is critical to supporting other industries necessary for the economic growth of Cuba.

Though unrealistic, in the short term (less than 5 years), but likely in the long term (greater than 5 to 10 years), the Cuban government should abandon its practice of excessive regulation and control to help revitalize its economy. Privatization will be key to all commercial sectors, more so, the telecommunications industry.

Fostering a competitive telecommunications industry with more than one company on the island will aid in building out a robust infrastructure across the island. Foreign investors are keen to join the Cuban telecomm market, provided the government abandons its overbearing policies and regulations practice of price management and state control.

V. CONCLUSIONS

A. COUNTRY COMPARISON

The countries of Jamaica and Cuba, located only 90 miles apart, share many similarities. The same tribes of Arawak Indians once indigenous to the West Indies inhabited both countries, and both were discovered by Christopher Columbus and colonized by Spain. Both had early histories of slavery, and the two countries are independent nations; Cuba having gained their independence from the United States, and Jamaica gaining theirs from England.

Though Cuba received its independence 60 years prior to Jamaica, The ideological differences in governments has seen very differing roads to the current status of the two countries telecommunications infrastructure.

The two countries were not far apart on ideological beliefs during the early 1970s, when Fidel Castro’s communist government wielded influence in the region. Jamaica’s telecom infrastructure was placed under state control when Prime Minister Michael Manley increased welfare benefits in efforts to support his agenda to promote a socialist style of government. Manley even visited Cuba, declaring Fidel Castro a friend of Jamaica, and declaring Jamaica to be a socialist state, surprising political analysts and the people of Jamaica. Jamaica thus became a democratic socialist state. Large businesses were put under state control, and those that were not, were taxed heavily. The result for the Jamaican economy was an extreme recession. Like Cuba, Manley’s support came from the society’s unskilled and unemployed. In the early 80s

the country’s frustration over poor economic conditions, saw its citizens vote in a new government, to move the country in a direction away from Cuba’s government influence of state ownership and socialism.

Jamaica’s foresight to abandon its socialist agendas in the early 80s, de-monopolize and liberalize its telecommunications market in the late 90s resulted in explosive growth across much of its telecom sectors. Cuba possesses the very same potential, should the government abandon is socialist ideology, and adapt a capitalist style economy where private investors are able to compete in a fair market.

1. Ideology

How nations allow their society to have access to telecommunications is largely a factor of government ideology. Nation states with democratic ideals predominantly promote freedom of speech, and access to telecommunications and technology information without restrictions. On the other hand, governments with ideologies rooted in a totalitarian style of governance generally restrict telecommunications and technology information for varying reasons to benefit its ideology.

In free States (i.e., nations that do not govern via totalitarian government), business enterprise is generally able to take hold easily, and companies generate innovative ways to acquire capital. This is especially true for the telecommunications field. In the democratic nation of Jamaica, the government, desiring to move its telecommunications infrastructure from a semi-owned state monopoly, to a modern and reliable infrastructure,

liberalized its telecommunications market, and allowed private investors to compete within the industry. Like most democratic countries, the result has been largely successful, with its citizenry and economy benefitting greatly from its now robust telecommunications sector.

Totalitarian states (i.e., nations that do not support democratic ideals) tend to not promote freedom of business enterprise, but instead promote socialist agenda's to support society. There are few exceptions, but government is still able to dictate business interests, even if private ownership is allowed. In the case of Cuba, the current communist government rules by totalitarianism, and has allowed very little private ownership of businesses. The government controls all facets of industries and conduct of its economy.

Telecommunications in Cuba has severely degraded under its communist leadership. Half-hearted efforts at improving the country's telecommunications sector through privatization have yielded little advances. Cuba's government has indicated its desires to privatize the country's telecommunications infrastructure, but government ideology and control seems most important to its current government administration. This was evident in January 2011, when the cash-strapped Cuban government surprised observers by arranging to buy out its remaining foreign partner in the business, Telecom Italia, for U.S.$706M ("cellular Telephones," 2012). According to the Cuban government, the reason for the move to reacquire total control of its monopoly run, state control,

telecommunications company (ETECSA), was its “wide ranging corruption investigations” clampdown.

Differing ideologies have seen Jamaica and Cuba achieve very differing communications growth. Jamaica is best served with her current form of government and liberal policies and regulations, while Cuba’s interests for improvement for its economy and telecoms sector will be best achieved by establishing a government more friendly to adapting a capitalist market.

2. Regulation Effects: Progress/Stagnation

Government oversight in the telecommunications industry is necessary to ensure technology and business interest are protected for both the business enterprise and the people it provides service to. Regardless of ideology, if left unchecked, telecoms can sometimes provide substandard service, in the interest of maximizing profits. This was true of American company AT&T, which in the early 80s, sacrificed customer service and satisfaction, in the interest of maximizing the company’s revenues. In the years prior to the 1980s, AT&T had a near monopoly and favorable relationship with the government regulatory body to promote its interests.

The Jamaican government has provided a healthy balance of oversight within its telecommunications industry. Though there is market dominance within the industry, the government has been keen to recognize and address unfair business practices, often through the legal process.

The Cuban government has not allowed competition within its telecoms market. State ownership has ensured

that ETECSA has remained a monopoly within the telecoms sector. As such, the government is able to dictate all facets of conduct with Cuba's telecoms industry, to include pricing. This was evident in February 2011 when the government made the receipt of receiving domestic cellular calls free. The price had been U.S. 45 cents per minute, prior to the announcement by President Raul Castro. Additionally, the government desires to further lower the price of the cost of using the only network on the island (run by the state-owned ETECSA) to better support its socialist agenda. This will undoubtedly cause more strain on a country that sees its citizens living off food rations. This will further prevent growth within the telecoms sector and scare away many of the foreign investors and companies who would like a slice of the Cuban telecom market.

Cuba should therefore present a documented phased approach, much like Jamaica in the late 90s, to clarify its intentions at privatization. Investors will be more willing to approach the Cuban market if guidelines satisfy potential for profits within the market.

3. Growth

Growth within the telecom sector for most countries is dependent on the attraction of capital to build out a serviceable network, able to meet the demands of its users.

The Caribbean islands of Jamaica and Cuba have experienced telecommunications industry growth very differently over the past two decades. Jamaica has improved its infrastructure as a robust network able to meet almost 100% of its society and business demand needs. Cuba on the

other hand continues to struggle with improving and growing its telecommunications infrastructure. However, should the Cuban government's ideology change, or a decision is made to liberalize and privatize its telecoms market, Cuba posses the potential to become the most dominant telecommunications market in the region.

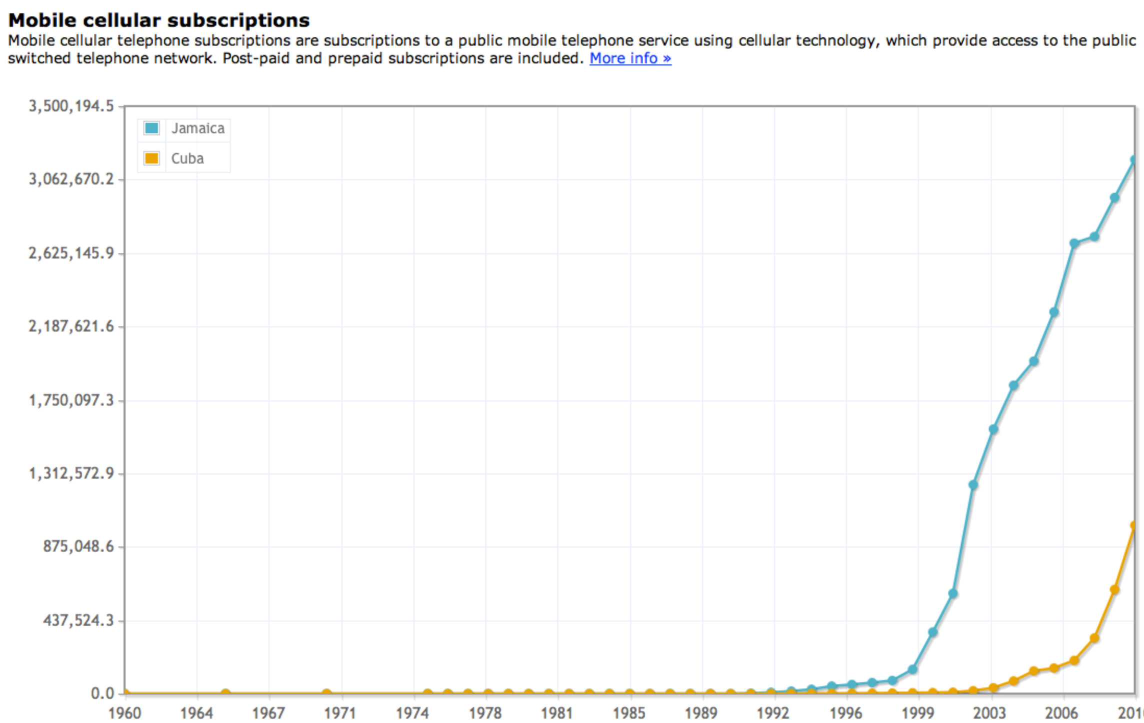

Figure 21. Jamaica, Cuba Mobile growth comparison (From "Mobile Cellular Subscriptions," 2011)

B. FUTURE RESEARCH

The policies and regulations within the field of telecommunications require constant oversight and changes to ensure the need to manage new and emerging technologies to satisfy users, businesses and market needs. Poor oversight, or autocratic oversight can hurt all facets of an economy, including the telecommunications sector itself.

Effects of monopolies can affect competition necessary to provide a robust and ever evolving infrastructure. Further studies on Jamaica’s current telecommunications companies may indicate the need for the government to review and revise its telecommunications regulations. With Digicel owning a commanding market share of the mobile cellular market, additional policies and regulations may need to be addressed to prevent unfair practices for companies with dominant or monopoly market shares (see Chapter IV, Section D).

Cuba is poised to become the largest and most lucrative telecommunications nation within the Caribbean region. Timing will be critical for U.S. companies to gain a commanding share of the market, should communism in Cuba collapse, or the government opens the market to competition, privatization and liberalization.

Of interest to countries in the Caribbean and Latin American region, United States Southern Command (SOUTHCOM), the organization who has military geographic responsibility to the President of the United States for the region, has expressed a need to provide specific communications research on countries in their Area of Responsibility (AOR).

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